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The Teaching of Nutrition in Schools of Medicine*

RUSSELL M. WILDER

Department of Medicine, Mayo Foundation
University of Minnesota

A radio listener to a University of Chicago Round Table discussion on the subject of "Health in wartime" wrote: "The civilian doctor can do a great deal of good missionary work by improving the diets of his patients. Too often in the past the profession has limited nutritional advice to such conditions as gastric ulcer and hypertension. Today the nutritional aspects should be considered in every case."

A professor of chemistry in a college of agriculture complained that by all criteria for judging animals many of the students at his college were grossly malnourished, but that the physicians in the community were untrained to recognize such abnormalities. Nor could they be induced to appreciate that the poor nutrition of the students affected unfavorably their athletic performances and their scholarship.

The services of physicians who have had training in nutrition are everywhere in great demand. Not only does their knowledge of this subject gain the confidence of patients, but other doctors in their communities seem only too glad to refer to them any patient who requires a careful diet. I know about this from the experience of all my former students. The apathy of most doctors regarding dietetics is astonishing. It is due, in part, to absorption in other fields of therapeutics. However, in large part, it also comes from lack of prior training in nutrition and thus from lack of knowledge of the subject. The simplest mathematical calculation seems to be beyond the grasp of many doctors. Counting calories and balancing intake and output of nitrogen or other nutrients present insurmountable mental hazards. Yet much of modern medicine requires appreciation of the need for precision in its application. The haphazard therapy of the past is gradually giving place in medicine to bioscientific engineering.

Except for surgery and obstetrics, therapeutics, until rather recently, involved little more than expert nursing and palliation. The student in the medical school of thirty years ago was encouraged to become a therapeutic nihilist.

*Read at the Fifty-third Annual Meeting of the Association of American Medical Colleges, held in Louisville, Kentucky, October 26-28, 1942.

Pathology was king and a tendency existed to ignore whatever could not be demonstrated with the microscope. The consequent neglect of chemistry and pharmacology carries over to a great extent today. The curriculum continues to give relatively little time to these fields, despite the fact that almost all the principal recent advances in knowledge of disease and of its treatment has occurred in them. The majority of the modern methods of diagnosis and therapy represent applications of biochemistry, yet this subject, as far as I can find, is no more emphasized today in teaching students than it was thirty years ago.

Furthermore, although biochemistry is taught with considerable effectiveness to the first year students of many medical schools, its application is neglected. The average student learns the principles of the science of nutrition as a part of a course in biochemistry, but from that point on, except probably in the work he does in pediatrics, he hears little more about the subject until he graduates. In consequence, he forgets what he has learned, to the serious detriment of his later skill as a therapist. It is a regrettable fact that what knowledge the average graduate or intern has about vitamins he acquires not from teachers of pharmacology or medicine, but from the detail men of the drug firms. He thereby comes to think of vitamins as pills and either gullibly accepts what he is told by the vendors of these preparations, or comes to think of vitamins as a racket and becomes heartily disgusted with everything that pertains to them. In either case his patients suffer. They pay for his lack of knowledge about nutrition either with their money or with their health.

This state of things is bad and ought to be corrected. The National Nutrition Conference for Defense called by the President to meet in Washington last year took cognizance of the need for more widespread education of physicians in the newer knowledge of nutrition. That conference was a truly remarkable assembly. More than 900 delegates attended and real work was done. The action program which resulted served as the basis of the present national campaign to improve existing conditions, if possible, or at least to mitigate the ill effects that can be expected from food shortages created by the war.

A special committee of the Professional Education Section of the Conference issued a set of recommendations which bear directly on the responsibilities of the Association of American Medical Colleges. This appears in the "Proceedings of the Conference" over the signatures of Dr. L. H. Newburgh, chairman, and the following physicians and dentists, members of the drafting committee: I. Sehour, Fred D. Miller, O. A. Bessey, P. C. Jeans and D. L. Wilbur. I quote as follows from it:

"At present there are few physicians, dentists or public health officers who are qualified to take an authoritative position in the field of nutrition, but the need for them is very great. This situation urgently requires remedies in each of the three following ways:

"A. *Better training in nutrition for medical, dental and public health students.*
—We recognize the inadequacy of the teaching of nutrition and dietary needs

to medical and dental students. Much attention has been paid to this teaching in pediatrics and, more recently, in obstetrics in some schools. But, in general, the teaching is inadequate in other departments where the subject could be emphasized with great profit. Students are usually given sufficient training in the biochemical and physiological principles of nutrition, but we are of the opinion that this information is not appreciated nor effectively used by the student because he is not given sufficient training in the practical application of this basic information.

"The problem should be called to the attention of the Association of American Medical Colleges, the Council of the American Medical Association and the Council on Dental Education of the American Dental Association. But inasmuch as action instituted by such bodies must necessarily be delayed, the attention of educators of medical, dental and public health students should be focussed on this problem by calling a conference of the deans of these faculties for its solution."

The recommendations also called for (B) "extensive postgraduate courses in nutrition" and (C) for broad and extensive training of numbers of physicians and dentists to provide the necessary medical guidance for the many professional and nonprofessional persons who are concerned with the nutritional needs of the people. To meet this need the establishment of nutrition clinics was recommended "in association with the professional schools and to provide facilities for research and advanced training in nutrition."

Owing to the pressure of the war the recommended conference of deans of the faculties of the medical and dental schools has not been held. It should be arranged for when possible. In the meantime, the coming of war has increased the need for training in nutrition, both of the students now in the schools and of physicians engaged in practice. There has been some sharp exchange of differing opinion as to the validity of certain estimates of the prevalence of malnutrition, but nearly everyone should be willing to agree to these three propositions: (1) that many diets are borderline in their provision of one or more of the many nutrients necessary for good health; evidence of prevalence of malnutrition may be lacking, as some persons seem to think, but almost every dietary survey has revealed that few diets can be rated more than fair; (2) that further reduction of the many poorer diets if necessitated by shortages of foods will result in much ill health if the restriction affects the nutrients whose provision has been borderline, and (3) that requirements for several nutrients, including several vitamins as well as calories, can be expected to increase in consequence of the increased stresses occasioned by the war.

Thus, unless the food policies of this country are guided scientifically, as has been done in England, the incidence of malnutrition can be expected to increase with serious repercussion on the prosecution of the war.

Aside from primary malnutrition, namely, malnutrition which results from dietary inadequacy, we have to deal in medicine with much malnutrition that is

secondary to disease. Fever, hyperthyroidism, pregnancy and similar conditions which accelerate metabolism increase requirements for several nutrients and thus provoke deficiencies. Also, if as a result of other illness the appetite is lost or interference develops with absorption from the bowel, deficiencies may develop. This is what has been termed conditioned malnutrition. The resulting disturbances are common among the sick, although usually they escape appreciation or precise diagnosis by being considered as manifestations of the original or conditioning disease.

The practice of prescribing bland diets, many of which are deficient in vitamins, in the preoperative treatment of patients with lesions of the stomach and intestines, is of questionable wisdom. The administration of solutions of glucose after operation, if continued for several days, will wash out the tissue reservoirs of thiamine and lead to acute alterations characterized by severe vomiting and paralytic ileus.

Therapy itself is frequently at fault in conditioned malnutrition. The susceptibility of certain vitamins, notably ascorbic acid and thiamine, to destruction in an alkaline environment should receive consideration when alkalis are used in treatment. Subnormal excretion of test doses of thiamine has been noted by normal subjects who had been given alkali. Ascorbic acid seems to play a part in biologic detoxications. The arsenical drugs lower the plasma level of this vitamin and patients with low reserves of ascorbic acid have been found to be unable to tolerate arsphenamine. Phenytoin sodium (dilantin) has a similar effect which presumably explains the sore and swollen gums that develop from slightly excessive doses of this drug. Some of the new sulfonamide drugs interfere with the activity of oxidative enzyme systems and thus increase requirements for certain vitamins. A review of these and other conditioned deficiency states will soon appear as one of the chapters of the "Handbook of Diseases of Nutrition" being published in the *Journal of the American Medical Association* by the Council on Foods and Nutrition. Jolliffe, the author of this chapter, makes it clear that factors which condition malnutrition have not received the appreciation they deserve.

The time has come to recognize frankly the need for considerably more attention to the chemical aspects of modern therapeutics. It has become clearly evident not only that malnutrition predisposes to several diseases which customarily are not attributed to malnutrition, but that several diseases of other than nutritional origin may predispose to malnutrition. The situation is one which makes it awkward for the physician who has not been trained in both the scientific and the practical aspects of nutrition. Without such knowledge he not only is unable to supply advice about nutritional diets, advice which the laity believes should be obtainable from every doctor, but also without such knowledge he will almost certainly fail to recognize abnormalities due to malnutrition conditioned by other disease or by his therapeutic procedure.

The subject matter, or at least the application of knowledge of nutrition, is far too broad to permit its being taught in any one department of the school.

The scientific principles must be supplied by biochemistry, but their reiteration should be encouraged in every later course in which their application is apparent. I believe, however, that a nutrition dispensary clinic is indispensable and I would like to suggest that the students attending this clinic should be the first year students in the course in biochemistry. Patients with manifest or suspected deficiency conditions from other departments of the dispensary should be referred to this nutrition clinic. A consultant in nutrition should be made available; diet histories should be obtained and special examinations of patients should be made in cooperation with the department of biochemistry. Both the patients and the students of the course in biochemistry would profit, the former by the lively interest their problems would create in such an atmosphere, the latter by the increased interest in biochemistry which this correlated clinical experience would engender. Only a minority of medical students in the past has exhibited a taste for biochemistry. The majority has been disinterested. The reason is not far to seek. The average candidate for the medical doctorate is not a scientist nor is he interested in science beyond its application. On the other hand, the teacher of biochemistry usually is a scientist and in the past has paid little attention to the application of his disciplines. Nowhere, however, do the principles of biochemistry apply more directly to the practice of medicine than in diseases related to nutrition, and for the student to learn this early in his course of medicine would be of great advantage not only for his later development but also for arousing his interest in biochemistry.

I, therefore, specifically would like to recommend a combination of practical teaching of nutrition, in a dispensary clinic, with the course in biochemistry. I would further suggest that the teachers of other departments of the college, particularly the departments of medicine, pediatrics and obstetrics, make a point of placing emphasis, more often than has been done, on the principles of biochemistry which underlie their specialties. This can readily be arranged by means of seminars or conferences in which the biochemist is invited to participate. The ivory tower idea is losing in popularity with scientists, as medicine becomes more scientific and the biochemists I have known have become very human people in recent years. I am sure they would cooperate.

The nutrition clinic, furthermore, could be made a place for intensive training of certain selected students. Facilities for research would be available, and thus provision would be made for enlarging the now far too small group of physicians with the training necessary to provide medical guidance for those who are concerned with the nutritional needs of the country as a whole, the state or the local community. The lack of enough of such guidance presents a serious handicap at present to the successful development of the campaign for improved nutrition. The profession has been tardy in accepting this responsibility. Action now should be demanded of every school of medicine. Such action is long since overdue for most of them.

DISCUSSION

DR. FREDERICK J. STARE (Division of Nutrition, Schools of Medicine and Public Health, Harvard University): I certainly agree in principle to the theme of Dr. Wilder's paper, and that is that training in nutrition for medical, dental and public health students—particularly in the practical application of nutrition knowledge—is very inadequate in most medical schools. It is a situation that can be and should be remedied. However, I think I might question as how best to organize the teaching of nutrition to medical student groups. I shall confine my discussion as to how I might differ from Dr. Wilder in organizing the teaching of nutrition to medical students, and in giving you some definite suggestions on how this may be accomplished. The latter constitute essentially the program now in operation at Harvard Medical School for amplifying instruction in nutrition.

Dr. Wilder mentions a nutrition dispensary clinic and suggests that the student attendance at the clinic should be the first year students in biochemistry. I question the necessity, or even advisability, of the nutrition clinic, and also whether the student attendance at such a clinic should be the first year students in biochemistry.

Nutrition is tremendously broad and its application is likewise. Its importance should be considered in every clinic, whether that clinic be medical, surgical, obstetric, or pediatric. Nutrition should not become a specialty but should become a part of every doctor's thinking, and I wonder whether a separate nutrition clinic might not emphasize the importance of adequate nutrition to the few rather than to the many, both as regards students and patients. This would not be the case were nutrition considered, and its role evaluated, in the problems and patients of the general clinics.

It is acknowledged that there are frequently patients who present unusual nutritional conditions and on whom special investigative studies are desirable. Most of these problems may be termed metabolic as well as nutritional, and no doubt such studies can be carried out more effectively in a smaller clinic or hospital ward with ready access to a separate laboratory, a special kitchen, and having better trained personnel and perhaps equipment that is not necessary for most general medical cases. I believe most medical schools and teaching hospitals have metabolic clinics and metabolic wards, and I would suggest that cases meriting special nutritional studies be followed in the metabolism units, and that to give any desirable publicity to the subject of nutrition that such clinics may be called the "metabolic-nutritional clinic."

Such a procedure is simple and inexpensive, it could be immediately carried out by most teaching units, and it does not add to the already too long list of specialty clinics.

In regard to first year students' attending clinics, I do not think that this is desirable under the usual curriculum of preclinical and clinical studies. Until a student has had some physical diagnosis it is a waste of his time to attend many clinics. This does not mean that an occasional clinic for the first year students, to illustrate the application of basic principles, is not in order. I think it is highly desirable. However, with the usual time available for biochemistry, all of it is needed to teach the principles of this subject, and these should include the fundamentals of nutrition.

My comments about first or second year students attending clinics, at the expense of time now devoted to the basic science of biochemistry, apply to the usual division of the medical program into two years of preclinical and two years of clinical work. However, it would seem that the logical way to teach the application of biochemistry, nutrition, physiology and other preclinical work to practical problems of medicine, would be to revise drastically the present curriculum and start the first year student with physical diagnosis and clinics, and have the basic sciences taught, by the faculty of the basic sciences, throughout the entire four years of medical school in

association with the practical problems of finding out what is wrong with patients, why, and what to do about it.

I should like to present some definite suggestions for improving the teaching of nutrition to medical students under the usual curriculum.

First, and most important, is that one individual, guided perhaps by a small committee, be given the responsibility to organize, correlate and, if necessary, amplify the instruction in nutrition. It is not necessary that a department or division of nutrition be established, but if there exists personnel whose chief interests are in the field of nutrition I think that a Division of Nutrition, organized within the departments of biochemistry and medicine, and having the responsibility for teaching of nutrition, both fundamental and practical, would be desirable. Such a Division of Nutrition should also have a close association with the dietetic activities of the hospital with which the medical school is affiliated.

Second, I think it advisable to have some organized instruction in nutrition each year of the four years in medical school, preferably within the framework of existing courses. The emphasis should gradually shift from the fundamental to the practical, but it is well to review frequently and briefly the fundamental observations and experiments from which the practical is derived.

Third, the course in biochemistry should be so arranged that sometime, preferably at the end of the course, a series of five or six lectures should be given which deal primarily with the nutritional aspects of biochemistry, including an introduction to the practical applications. During the regular course the student has been taught something about protein, amino acids, electrolyte balance, fat, calories, vitamins, etc., but at the end of the course, time should be devoted to discussing these phases from a purely nutritional viewpoint, including the practical. Here one might very well ask one of the clinicians to take one or two periods, with clinics, to illustrate practical points.

Fourth, during the second year when most students take physical diagnosis, time should be devoted to instruction as to how and why to take a careful nutritional history, and what symptoms and physical signs one may find following inadequate nutrition. At present, I take two periods with the students in physical diagnosis. One is spent in discussing what constitutes a good diet, how this is obtained from food, how to take a diet history, why, and how to evaluate it. The second period is spent in discussing symptoms and signs one may expect in faulty nutrition.

For the third and fourth year students and the resident house staff we have organized a new, voluntary, course, entitled "clinical nutrition." The course is also open to any others who may be interested. We meet once a week in the late afternoon in the amphitheatre of the Brigham Hospital. The object of the course is to discuss the implications and importance of nutrition to medicine, not solely to the usual deficiency diseases—in fact, that is a very minor part of the course—but mainly to inquire into the role of nutrition in the common diseases and the practical problems of general medicine. The programs are very informal, discussion is encouraged, and in most of the programs there are at least two participants, one to discuss briefly the important biochemical findings, and the other to discuss the subject from the viewpoint of human nutrition and practical problems of general medicine. When available, patients are used to illustrate particular points.

An interesting and important feature of this course is that we have asked a large number of the clinical teaching staff to participate. None of them are asked to prepare an hour's talk but many have been asked to give twenty-minute informal talks, which frequently include a discussion of an assigned paper. By having a large number of the clinical instructors and professors participate we feel that we stimulate their interest in the role of nutrition, which, in turn, may result in more consideration of the nutrition problem when they are with students.

I think it might be interesting to mention some of the subjects and participants that we have had, and have scheduled. In our first program Dr. George Thorn and I each took about thirty minutes discussing the essentials of good nutrition and how these may be obtained from the daily diet. In the second program Dr. George Minot discussed the diet history in the examination of the patient. The rest of that period was taken over by the hospital dietitian on the same subject. Last week we had a visitor, Dr. Julian Ruffin of the Department of Medicine, Duke University Medical School, who gave us an excellent talk on mild B-complex deficiency and its relation to the neurasthenic syndrome. Tomorrow we discuss vitamin A in human nutrition; one participant is from our Division of Nutrition, and he will discuss the high lights of the biochemistry of vitamin A, and then Dr. Allen Butler will discuss the clinical role. Other topics arranged are: (1) Nutrition and arthritis; (2) protein and human nutrition; (3) nutrition and cardiovascular disease; (4) calcium and phosphorus in human nutrition; (5) nutrition and gastrointestinal disease; (6) nutritional therapeutics; (7) nutrition and the care of surgical patients; (8) pregnancy, lactation and the diet; (9) nutritional problems of the war and postwar period; (10) nutritional values of common foods and food enrichment; (11) kidney disease and nutrition; (12) nutrition and the anemias.

So far this course in clinical nutrition has had a most unusual attendance. For the first session we had thought—this being a voluntary course and not as yet listed in the catalogue—that we would be lucky if we had an audience of ten or twelve. Much to our surprise we had more than 100, and as yet the attendance has not fallen off. This strongly suggests that there is an interest and a desire for knowledge of nutrition and its role in medicine.

Other nutritional activities we have for the third and fourth years are the following:

1. Our metabolism clinic has been enlarged to include those cases of special nutritional interest—and the name changed to "metabolic-nutritional clinic."
2. Nutritional investigations are under way with patients hospitalized in the metabolism ward.
3. Four lectures on nutrition are included in the course on preventive medicine which is compulsory for third year students.
4. A definite attempt is made to have an expression of nutritional thought, when appropriate, at the weekly clinical pathological conference and at the weekly grand rounds.

The two most important steps to accomplish this are:

1. Some organized instruction in nutrition in each of the four years, preferably within the framework of existing courses.
2. Delegation of responsibility to some one individual, trained and interested in biochemistry, nutrition and medicine, to see that a good program, consistent with the personnel available, is actually carried out.

DR. JOHN YOUMANS (Vanderbilt University): Although there can be no disagreement as to the fundamental importance of nutrition and the importance of the teaching of it, there can be, as Dr. Stare indicated, some differences of opinion as to the methods by which it should be taught.

One of the reasons nutrition is important is its universality. It is a fundamental and important part of every department, every subject, every specialty, every practice, and for that reason there may be some danger in attempting to teach it as a specialty, in attempting to make it the responsibility of any one individual, or in offering it in the way of formal courses.

It seems to me that the basic responsibility should be put on existing departments, much as Dr. Stare suggests. In other words, the adequate teaching of nutrition in

medicine is the responsibility of the department of medicine, and teaching of nutritional aspects of surgery is primarily the responsibility of the department of surgery.

This does not mean that many devices used in teaching cannot be employed. It may be wise in many places to establish separate clinics of nutrition for purposes of either undergraduate instruction or research or for postgraduate teaching. It may be wise to institute orientation clinics, such as are used to considerable advantage in many other subjects. But it seems to me at least debatable whether one should put the main responsibility for as fundamental and all pervading a subject as nutrition on any one individual or on any particular formal course in that subject.

At Vanderbilt we have made some special efforts with regard to the teaching of nutrition. That is partly fortuitous. I happen to be interested in nutrition, and I happen to be so placed that nutrition can be emphasized. We have strengthened the work in nutrition in biochemistry by the addition of special work and by the assigning of special instructors to that phase of biochemistry. When it comes to courses like physical diagnosis, I heartily agree with Dr. Stare that the proper aspects of nutrition should be introduced. However, I regard it as primarily a function and responsibility of the person or the department which is teaching physical diagnosis. In our case, this happens to be myself, and it is no trouble at all for me to emphasize or give the proper place to nutrition.

In the clinical years, naturally an attempt is made to give nutrition the part it deserves. But, again it seems to me that if it is made too much of a specialty, there might be an escape from responsibility on the part of other members of the faculty of a kind which is already familiar. We all know of the tendency to neglect even the simple and fundamental things in neurology or in dermatology because they are special fields. Consequently, I would make a plea for proper emphasis on nutrition in all divisions of the medical school and the placing of the primary responsibility for teaching it adequately on existing departments.

DR. A. W. HOMBERGER (University of Louisville): We, in Louisville, have been very much interested in a program of nutrition for many years. About twenty-four years ago we decided that nutrition should play a role in the program we are carrying out in our School of Medicine and in our General Hospital. The method by which we were to do this was debatable. We first decided that probably it might be well to link it to the freshman chemistry course. We did that at first, but it did not work out so very well. We then thought it might be well to try to transfer it to the sophomore year, but that did not work out so very well, because the sophomore year was rather crowded to begin with, and some of the students in the junior year said, "Wouldn't it be better if we would transfer that course in nutrition to the junior year?"

We did that. The course has stayed there for the past twenty years. We do teach some small amount of nutritional work at the close of the freshman year.

I am rather interested in the suggestion made by our first speaker, because only last week one of our freshman students said, "I wish we could get a little more work along nutritional lines." I suppose the national program has been responsible for this interest.

In our junior year I take up with the students normal and abnormal diets. I give them what is considered a good normal program which is conducive to physical fitness, and from there on we switch over into the abnormal diets and take up individual diseases, and the types of diets that should be given under those conditions.

How do we go about that? On account of the short time and on account of the fact that we do not want to make it a specialized course in itself, I have handled the course by means of mimeographed sheets. I hand these boys at the beginning of every period a general outline of the day's program. I give them, likewise, type

diets, indicating to them that they are merely type diets which must be modified. I then give them a general outline of what the individual conditions they may meet will require. I have slides which show them the influence of deficiency diseases, and we work up, for example, high vitamin diets. We also build up diets calorically and, finally at the close of the course, we let these boys choose some specific disease, and then see how far back there were any references made to the diet, and bring it up to the modern ideas we have with regard to the influence of diet on health.

Whether the course is good or bad, our boys do come to me after they are out of class, both in the junior and senior years, and will want more information when they run up against a stumbling block in the General Hospital. In other words, I think, if we can arouse enough interest among these boys so that they will think a little about the nutritional aspects of disease, and if we can stimulate them to go into the literature as it comes out in the mouthy journals, we can accomplish a great deal.

I agree that possibly we do not want to make it a too highly specialized course but, at the same time, I think there has to be a concentration of effort to bring out the fundamental principles involved in this whole nutritional program. I think there is some merit in Dr. Wilder's suggestion, because the boys who come to us now from city schools and from colleges are better trained than they were fifteen or twenty years ago. There is more nutritional work taught in the high schools. There is also a general program given in many of our colleges, and these boys get a smattering of it and are interested. I believe, if some system might be worked out whereby we could tack on some practical experience at the close of the freshman year, it might go a long way in creating interest in this whole subject.

At this time especially, with the national nutrition program, we can and we should place more emphasis on that subject than we have in the past.

DR. PHILIP A. SHAFFER (Washington University): I am glad to express my hearty endorsement of much that has been said here this morning; and I would approve particularly the protest by Dr. Stare to making a new specialty out of nutrition. I would put the boot on the other foot. The trouble really is that there are too many clinical teachers who still do not know as much about nutrition as those who read *Good Housekeeping* and the *Ladies' Home Journal*.

Do not expect the biochemists, whose duty is mainly to provide concepts, facts and techniques, to make the applications in the clinic. The biochemists have enough to do. The job is to try to get the clinical teachers to take more interest, to inform themselves better about this subject. It has always been so.

If I may go back further than the references of one or two who have referred to the past. In 1906 or 1907 I read a paper on nutrition in typhoid fever at a meeting of the New York Academy of Medicine. One of the then most distinguished professors of medicine in New York City, who had written a well known textbook on dietetics and nutrition—no other than Gilman Thompson—in discussing my paper about high calorie diets in typhoid fever, said that so far he had never found it necessary to use the calorie in medical practice and he did not see any occasion to do so. That still remains the attitude of many clinical teachers.

One way to correct this would be to give a course in nutrition to the members of our clinical staffs. I do not know how to do that. It is like the story Dr. Diehl told about the Indian chief with too many squaws—"You tell 'em."

There is, however, the chemical way of doing it. The chemist who wants to get something accomplished looks for a catalyst. There are a few catalysts, like Dr. Stare, Dr. Wilder, and a number of others, who are going to bring about this reaction.

The introduction of young men at intervals constantly, one after another, into

the clinical departments to preach among their colleagues this doctrine is the practical way of solving this problem.

DR. CHAUNCEY D. LEAKE (University of Texas): Along these lines, it is important, also, for medical schools to remember their obligations toward the profession. Nutrition is a field in which, I think, medical schools might offer continuation courses to great advantage to practicing physicians, because the bulk of practicing physicians now have little concept of the tremendous improvements that have been made in the field of nutrition. At the University of Minnesota, I understand the continuation courses offered there, which are provided over week ends, have been most successful in connection with the field of nutrition. It might be that in such symposia, ranged over Saturdays and Sundays, much of the program discussed by Dr. Stare might be compressed, and it might offer an opportunity for the clinical staff to attend, or even the students of the institution.

There is another feature in connection with nutrition that is of particular advantage where there is a dental school in association with the medical school. The subject of nutrition can be handled effectively in cooperation by both institutions. That was the case at California.

One important piece of technique is cooperation with the dietitians, in order to give actual demonstrations of dietary samples of various sorts that are appropriate for various conditions. We mostly tend to remember what we see, and the actual demonstration of the meal that is proposed for a particular diet is an important aid, I believe, to people who take work in nutrition.

DR. ALAN GREGG (Rockefeller Foundation): It would seem to me that it might be valuable always to keep in mind the distinction between metabolism and nutrition. The biochemistry of metabolism, as Dr. Shaffer said, is the affair of the biochemist. I should suppose it would be logical to have the course in hygiene give some emphasis to nutrition, and more so because I am rather inclined to think that as progress is made in nutrition and our knowledge of it, we will find an astonishingly larger amount of information in the general population about nutrition. That is already the case. I would like to think of nutrition as the thing in which medical students, furnished with information already available in the community, will come to school knowing most of the outlines of it and its more exact application to disease. The exact biochemical mechanics of metabolism is the thing they would get in school, rather than a knowledge of a well balanced diet. It seems to me there is every likelihood that the newer knowledge of nutrition will be the common possession of the community at large.

I think the other aspect of his paper is one that characterizes most of the other subjects that come up every year at meetings of this kind. Your problem is not what are you going to do to the long suffering student, but how are you going to get the faculty to keep up with the progress made by its own members.

DR. JAMES A. GREENE (University of Iowa): We have approached this problem from a little different angle. We agree that nutrition should not be a specialty. We have been teaching it from a different point of view than has been presented for several years. The students get their fundamentals in biochemistry. Then Dr. Jeans discusses the fundamentals of nutrition, and nutritional diseases as far as the child is concerned. Normal nutrition for the adult is presented, followed by nutritional diseases, per se. As the diseases of the different systems of the body are discussed, the nutritional problems which arise in those diseases are emphasized. In that fashion, we think that we have been approaching the problem a great deal better than previously. We are not entirely satisfied with it, because our students are not getting sufficient dietetics.

DR. C. H. NEILSON (St. Louis University): I should like to defend the clinical

man. Having been trained as a biochemist, and later going over into medicine, I think I can appreciate both sides of the situation. I would like to get some of the fundamental men (shall I say, Ph.D.'s?) to get some idea of the problems of clinical medicine. We talk about putting the clinical man down into the fundamental branches so that he can get some idea of the basic sciences. I believe the average young clinician today, in his work in the hospital and in his work in conferences and ward rounds, has an accurate, average knowledge of nutrition. I think the knowledge of nutrition of these young men and teachers in our medical schools is as good as the knowledge of some of the fundamental men in problems of clinical medicine.

DR. EDWARD L. TURNER (Meharry Medical College): Certainly, if any group of physicians should know something about nutrition, it should be the colored physicians who meet so many nutritional problems among their Negro patients. We have made every effort, during the past four years, to emphasize nutrition, physiology and biochemistry in our junior year. We have a course given by the dietitians, where diets are actually prepared and are then discussed. Costs of diet are discussed with the students. We then have the dietitian explain to the students how they can substitute certain things, so that the diet does not become prohibitive for the economic group with which we are dealing.

In the senior year, in the outpatient clinics, every senior student must spend a certain part of his time in the metabolic and nutrition clinic. Beginning last month, we started a program of having every patient who comes into the medical service go through the nutrition clinic, and have each patient who comes in give us definite information as to his diet. We are gradually accumulating some information that we think is going to be of tremendous value in helping us to teach our young physicians to really approach the problems they have to face in this important field.

I wish there were time to tell you some of the many interesting nutritional problems we get into, but I am firmly convinced that one of the major problems of the clinician at the present time is to get down to brass tacks and learn how to feed his patients.

DR. TINSLEY R. HARRISON (Bowman Gray School of Medicine): We have been faced with the problem of planning the teaching of nutrition in our medical school. At the beginning of the third year, the students receive a series of discussions concerning the fundamental aspects of nutrition. These discussions consist mainly of a review of physiology and chemistry, and of the various factors which are concerned in nutrition. However, the discussions are given by a clinician rather than by one of the preclinical staff. During the medical clerkship, the students make one ward visit weekly with the Dietitian-in-Chief. At that time the patients on the medical wards are seen and their diets are discussed. In addition, the students work on the medical wards, spend one hour weekly in the laboratory of the Department of Dietetics, where they are concerned with the actual problems of preparation of food, selection of diets, palatability, etc. Since the plan has only been in operation for a few months, it is too early to draw any conclusions concerning it. It does appear, however, that the students are taking an unusual interest in the problems of nutrition.

PRESIDENT CHANDLER: I would like to ask Dr. Stare how much teaching he and his group give to nonmedical students, and what place a scientist, interested and trained in problems of nutrition, without clinical experience, has.

DR. RUSSELL M. WILDER: I think the discussion has brought out that there are two phases to this problem. One is the importance of more knowledge of dietetics by clinicians and, the other, the importance of more knowledge about nutritional states. The two are distinct.

It is very true that many of our clinicians are not utilizing dietetics as fully as they could. It is still true that many of our therapeutic diets are woefully inadequate

in respects that are inexcusable, but there is this other problem of recognizing abnormalities that are attributable to defective nutrition. That problem is extremely difficult and still is in the stage of development.

Most of us have been inclined to attribute to disease symptoms and manifestations that result really from nutritional abnormalities created by the disease, or by our methods of treating the disease. These states of malnutrition represent a field that needs very careful consideration, and I believe our therapy, in general will be much improved if attention is given to this subject by clinicians.

I hope I did not indicate that I felt that nutrition should be a specialty. There will be individuals who will, by training or interest, acquaint themselves more thoroughly in this field, but I agree with what Dr. Stare and Dr. Shaffer said most heartily, that nutrition is something that covers every field of medicine and that it cannot be limited within the bounds of a specialty. Our principal obligation is to acquaint clinicians generally with the bearing of this subject in the fields in which they are working.

DR. FREDERICK J. STARE: I have given serious consideration only to the problem of teaching nutrition to medical and public health students and so do not feel justified to comment at this time on the teaching of nutrition to other groups. In my discussion today I dealt only with the teaching of nutrition to medical students. The subsequent discussion has suggested two points which I did not mention and which are important. First, in the general course in biochemistry, we are offering an elective laboratory procedure for students who would like to get practical experience in the technic of nutritional investigation. We are making arrangements to take care of forty students, in groups of five each, to prepare deficiency diets, feed and take care of their animals, observe them, and then report to the entire class on what they have done and the results. This is simply a voluntary part of the regular laboratory work in biochemistry and offers an opportunity to get some idea of the experimental side of nutrition. The actual production of disease by inadequate diets should impress the student of medicine with the importance of nutrition in his chosen field of endeavor. Second, as Dr. Leake mentioned, it is important that proper and full use be made of the teaching possibilities available in the dietetic service of the hospital affiliated with the medical school. Again, may I point out that both these suggestions are probably available in every medical school, if only someone will take the initiative to make use of them.

I have not gone into the problem of teaching nutrition to students in the School of Public Health. I might mention that the Division of Nutrition at Harvard is jointly in the School of Medicine and the School of Public Health and that we have the responsibility for teaching nutrition in both schools. In the School of Public Health we have a regular course in nutrition, which starts in February, continues for three months, and consists of three hours of lecture per week. In this course, the emphasis is on the role of nutrition in public health: assessing the nutritional status of a community, evaluation of nutritional surveys, relation of nutrition to epidemiology, and particularly the tremendous nutritional problems of the postwar period.

May I close by saying that the teaching of nutrition to medical students, like the teaching of any other course to any groups of students, is principally a matter of personnel—a personnel of the administrative board that wants the subject taught well and makes adequate arrangements for doing so, and a personnel among the teaching staff that knows how and what to teach, is enthusiastic about doing it, and does it.

DR. A. W. HOMBERGER: I think, with the tremendous amount of information which has accumulated, especially along the lines of deficiency diseases within the last decade, our main and prime object should be to arouse enough interest in our young medical men so that they will really give thought to the subject of nutrition in all of their contacts with their patients.

Coordinating Program of Health, Hospital, and Medical School in a Municipal University*

HUGH R. LEAVELL, M.D., DR.P.H.

Professor of Public Health, University of Louisville School of Medicine
Louisville, Kentucky

A municipal university has special responsibility to the city which helps to support it. The city, in turn, has a special interest in the university to which it contributes. The relationship is one which may be cultivated and developed to mutual benefit, as has been done in the case of the University of Louisville and the City of Louisville. The purpose of this discussion is to describe briefly the plan of collaboration as it has developed over a period of years, with the idea that certain features may be both interesting and useful to those in somewhat similar situations elsewhere. Such an interest has already been manifested by a number of visitors from other localities.

The University of Louisville, as a whole, receives about one-third of its income from the City, the balance coming from tuition fees and a relatively small endowment. As our present interest is chiefly in the Medical School, consideration will be centered on that phase of University activity. In a discussion so limited, it is apparent that the Health Department is the principal point of contact with the municipal government.

The City-County Board of Health was created a few months ago when the state legislature passed a consolidation act combining the Louisville Health Department, the Jefferson County Board of Health, and a joint city-county Tuberculosis Hospital Board. Board members are appointed for staggered terms by joint action of the Mayor and the County Judge, on a non-political basis. The Board of Health appoints a Director of Health, who is its executive officer, and who, in turn, appoints employees of the Health Department. A civil service system embraces all employees except those in positions requiring no training, such as cleaners, laundresses and the like.

The Health Department is responsible for all local governmental medical care provided in the entire county, which includes about 450,000 persons, living in industrial as well as rural environments. Two hospitals are operated, of more than 500 beds each. One is a tuberculosis sanatorium; the other a general hospital including facilities for acute communicable disease cases. The General Hospital conducts a large dispensary. Home medical care is also provided for patients requiring that service.

Preventive service of the type usually included in health departments is also the responsibility of the Board of Health. A number of clinics for the control of tuberculosis and venereal disease are maintained, in addition to prenatal and child health conferences. Milk inspection, sanitation, industrial hygiene, health education, vital statistics and other similar activities are also

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carried on, of course. Two well equipped Health Centers located in Municipal Housing Projects give intensive service to special districts, one of them conducted by Negro personnel in the Negro district. A Health Center is, at present, about to be constructed adjacent to the General Hospital, which will centralize all Health Department offices and activities. Thus the services rendered by the Health Department are quite broad and inclusive, offering excellent opportunities for teaching not only clinical medicine and surgery; but also public health and preventive medicine.

The value of having clinical material available for medical students has, of course, long been recognized. Osler,¹ who introduced bedside teaching in this country, regarded it as his greatest contribution. In 1905, when making his Farewell Address to the Johns Hopkins University, he said, "I desire no other epitaph . . . than the statement that I taught medical students in the wards, as I regard this by far the most useful and important work I have been called upon to do."

It was Haven Emerson² who pointed out before the Association of American Medical Colleges in 1923 that the facilities of a health department were of similar importance in teaching public health to medical undergraduates, when he said in discussing a paper presented by C.-E. A. Winslow, "The health department of the district, or the county, or rural area should be affiliated with the university medical school as public hospitals are at the present time."

The Louisville and Jefferson County Health Department, then, has available to the University a general hospital, a tuberculosis sanatorium and a health department. How are these facilities used by the medical school, and what is the mechanism by which the collaboration has been implemented?

The General Hospital and its dispensary are used fully in teaching the various clinical subjects. Students have full access to all patients. In addition, they actually live in the tuberculosis sanatorium for three weeks during the senior year. Students do the actual work in a clinic for domestic servants, where the technic and function of the periodic health examination are taught. They make field trips with the health department public health nurses, sanitary and milk inspectors, and see something of the administrative activities in tuberculosis and venereal disease control. They visit milk pasteurization, industrial and water purification plants and slaughter houses under the direction of health department personnel; and they are taught the care of well children in child health conferences conducted by health department physicians and nurses. They work out epidemic problems under the direction of the health department epidemiologist, and are taught how to fill out birth and death certificates by a vital statistician who knows what information he needs from future physicians.

The collaboration has been achieved in several ways. In numerous instances, members of the medical school faculty hold positions on the staff of the health department, and vice versa. In not a few cases, salaries are shared between the

1. Fitcher, T. B. (Quoting Osler): The importance of bedside study and teaching. *Canadian M. Assn. Journal* 32:633-654, Oct.-12, 1936.

2. Emerson, Haven: Education in preventive medicine in the medical curriculum. *Proc. A. A. M. Colls.* 5:36-49 (March), 1925.

school and the health department, which practice seems to assist in developing a feeling of loyalty to both. Much of the collaboration was achieved in days before the health department became non-political. Community leaders interested in improved health conditions would contrive to place one activity after another "under the university" to take it out of politics.

The first health department activity in which university cooperation was achieved was, naturally, the general hospital. While more or less of a teaching institution since its inception, the medical care of patients was by no means free from political interference. Finally, some twenty years ago, an agreement was made between the City and the medical school which gave to the school responsibility for the quality of medical care the patients received, in return for extension of the privilege of teaching students in the hospital. This agreement has been modified slightly from time to time. In barest essentials, it provides for a Staff Executive appointed from the full time teaching faculty, who is responsible for organizing and supervising the medical staff. A Hospital Executive Committee, with representation from the medical school, the administrative staff of the hospital and the health department is the body which appoints interns and residents, passes on major disciplinary problems, and, in general, acts as a liaison committee. The health department, of course, retains its legal responsibility for the care of patients, but actually delegates it to the school. The health department continues to be responsible for administering the hospital, fixing policies regarding admission of patients, maintaining the plant, and so on. Expenses are borne by the health department, except for salaries and portions of salaries of teachers, resident staff, and some technicians which the school pays, actually about 6 per cent of the operating cost. Such a relationship as this is obviously not without its problems. A wise and understanding Dean who serves as Staff Executive has been a most important factor in preventing difficult situations, and in patching them up when they inevitably arose.

The laboratory services of the hospital are examples of particularly close cooperation between the health department and the school. Bacteriological and serological laboratories are directed by the professor of bacteriology in the school, with his salary jointly paid. As a result of this arrangement, a salary is available to provide a higher type man than either the school or the health department could afford separately. These particular laboratories also carry the preventive work for the health department, including milk and water analysis, examination of specimens for the detection of communicable diseases, and so forth.

One of the anatomy professors is in charge of the roentgenology department, again on a salary sharing arrangement. Hospital pathology, biochemical and chemical laboratories are likewise directed by medical school professors.

As a general principle in laboratory work, the health department pays the cost of routine examinations, and the school is financially responsible for technical assistance and supplies for research in the hospital. Since the city makes substantial contributions to the University, the city is also assisting in the research activities; but considers it better to do so through the medical school budget.

The Department of Social Service represents another example of collaboration. The director of the activity is jointly paid. She assists in teaching in the University Graduate School of Social Administration, giving lectures in medical social work, and supervising graduate students in their field work in the hospital. In addition, she assists in conferences with the senior and junior medical students in which the effect of the environment on disease and the reverse are emphasized, along with such preventive aspects as can logically be introduced into the discussion of cases on the medical wards.

The Medical School Department of Psychiatry has also done an interesting job in developing community relationships. In cooperation with the local Community Chest, a mental hygiene clinic is operated. This clinic supplies consultation service to all community agencies, as well as furnishing a training ground for the resident staff of the General Hospital, and for the medical students.

A survey by the author in 1939-1940³ showed that the very great majority of medical schools in the United States and Canada were using health department facilities in one way or another to assist in teaching public health and preventive medicine. It is quite apparent that the health department can be more useful in this work if closely integrated with the school. In Louisville, the professor of public health is also director of the City-County Health Department. This joint position makes it easy for him to secure whatever health department facilities are desired in connection with teaching medical students.

Biweekly meetings of health department bureau heads are held in the public health library of the medical school. Tea is served, to promote sociability, and matters vital to the health department discussed, including plans for teaching the medical students, and problems that arise in connection with this phase of the work. Staff members have free access to the medical school public health library, as well as the general medical library, and the meetings held in the building help to familiarize them with what is available. The health department staff members have the feeling of a close relationship with the school, and readily contribute their services in giving lectures, field trips, laboratory exercises, and so on. It is well at this point to emphasize, however, that the medical school course in public health should by no means be composed of a succession of experts in the various fields of public health, each expounding his own phase of the work without proper coordination. Actually, the place where most of the health department staff can be especially useful is when the students are at work in the field. Some make much better teachers than others, even there.

Active participation in the work of an official agency gives the professor of public health contact with day to day happenings that serve as useful illustrations in the courses for the medical students.

An example of how the joint position may prove useful, occurred a few years ago. Local pediatricians had expressed a desire for the establishment of

3. Leavell, Hugh R.: *Teaching preventive medicine to medical students, with special reference to the use of health department facilities.* The Commonwealth Fund, New York City, 1941.

a clinic at which domestic servants might be examined for the detection of communicable diseases to protect the children the domestics were looking after. When the county medical society was approached for its reaction to the operation of such a clinic by the health department, there was some expression of disapproval. Opposition vanished, however, when the plan was presented as a project in which medical students would make the examinations as an exercise in the technic of the periodic health examination, under the auspices of the Medical School Department of Public Health and Bacteriology, with the professor of public health in charge of the clinic, and the local Tuberculosis Association furnishing a public health nurse and clerical assistance. As a teaching project, the plan was acceptable; whereas there was objection to it by the medical profession as a service plan.

In the survey previously referred to, approximately one-half the schools using health department facilities in teaching stated that some remuneration was provided by the school for this work on the part of the health department personnel. Some schools have tried to pay something to a number of the health department employees who assisted with the students, and later found that this caused dissension, since inevitably some who participated were overlooked. An apparently satisfactory solution of this difficulty was to lump the entire amount available from the school for this purpose, turning it over to the health officer as a part of his salary. If the health officer can feel that he is being compensated for spending time on the teaching program, it is likely that it will be more effective. He will also probably make it possible for other health department workers to arrange their schedules so that they can give students necessary time. This plan has been carried out in Louisville up to the point where the entire salary of the director of health is paid by the medical school. In return for his services without salary, the Board of Health has been glad to approve the use of health department facilities in teaching students public health. Other advantages accrue to the Board from having students who are to be future practitioners in the community become somewhat familiar with the departmental activities.

Those who have been in intimate contact with the plan which has been described feel that it works efficiently and economically. Certainly a community which takes part in supporting a variety of different agencies can derive great satisfaction from seeing them work with the greatest possible coordination, complementing each other's facilities to the fullest extent.

DISCUSSION

DR. C. SIDNEY BURWELL (Harvard University): In the organization of the care of infectious disease in the community, and in the organization of the teaching of infectious disease in the medical school, I think most of us (both communities and schools) have suffered from a division of labor.

Three groups are involved: The epidemiologist and his field workers, the bacteriological laboratory, and the hospital which cares for the patients. To bring those three groups together in teaching, as in carrying out the work, is extremely important and I think Dr. Leavell's work has set us an example which we can observe with a great deal of care and with profit.

Finger Printing of Medical Students*

MAURICE H. REES

Dean, University of Colorado School of Medicine and Hospitals
Denver, Colorado

From the time of earliest recorded history of the human race various types of personnel identification have been in vogue. One savage tribe was distinguished from other tribes by certain body markings, such as self-inflicted scars, or by distinctive attire or hair dress. Within the tribe social classes were distinguished by prescribed body markings as well as by attire and by ornaments. Branding of criminals and slaves was used for identification purposes. Later, the Romans used tattooing for identifying their mercenary soldiers.

As society became more complex it became increasingly important to find a practically infallible method for individual identification. This search for an identification method was especially stimulated and advanced by the law enforcement bodies. With the advent of photography a new and most useful aid to identification was established in 1882 by Alphonse M. Bertillon, a noted French anthropologist and criminologist. This system of identification was adopted by France and became known as the Bertillon System. This system, which was later adopted by most civilized countries, was based on accurate measurements of certain bony parts of the human anatomy as well as on definite rules for recording the personal description of an individual.

Deficiencies in this system soon began to show up. It was especially inaccurate for individuals under 21 and those over 65 years of age. The descriptive terminology was often misunderstood, and it was difficult to train personnel to take and record accurate measurements. The Bertillon System is still in use in a modified form as an adjunct to the Finger Print system, which is rapidly replacing all other systems of identification.

The Finger Printing System cannot be called a new system. Finger print impressions have been found on seals and clay tablets dating back before the Christian era. Sir Aurel Stein, the British explorer, discovered many ancient documents in the sand buried cities of Eastern Turkestan, among them being three Chinese loan contracts dating back to A.D. 782, which when translated were found to end with this formula: "The two parties have found this just and clear and have affixed the impression of their fingers as a distinctive mark."

Finger print identification became prominent in England about the middle of the last century. The introducing of the finger print system to this country was to no small extent due to Samuel L. Clemens (Mark Twain) who in his book "Life on the Mississippi" and later in his novel "Pudd'nhead Wilson" advocated that no two finger prints were alike and that finger prints did not change from birth to death. These statements of Mark Twain have been proven

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conclusively to be correct. Finger print impressions are from the body of the person to be identified. They cannot be disguised, forged or altered. They are the only infallible identification remaining unchanged throughout the life of the individual. Trained experts can make positive identification almost instantly, while all other methods of identification require days or weeks of examination and comparisons, and in the last analysis are largely based on opinion.

It is unfortunate that the development of the finger print system has been almost entirely in the field of criminology. This has branded it as a crime seeking procedure, and has created a general reluctance on the part of the public to be fingerprinted. This reluctance is now being overcome, to a great extent, by the universal use of finger printing by the army and the navy. The public is now beginning to realize that finger printing is an infallible identification procedure rather than just a crime chasing method.

Since finger printing is a proven infallible method of human, individual identification its use should now be universal. Laws should be enacted regarding the finger printing of every individual. All legal documents should be certified by the finger print of the individuals concerned. We should revive the old Chinese custom of sealing contracts with finger prints.

Most of the papers and records involved in professional education of a doctor of medicine have a legal aspect. The medical student and the doctor should have the protection of individual identification of all documents pertaining to his progress in his profession. The transcript of his record in medical school, his diploma, his certificates of internship and residency, certification by specialty boards, state license, etc., are all valuable documents which have legal importance. They may be stolen or lost and may reach unauthorized hands. These bring up the question of identification. Most of the documents mentioned above have a blank space on the back which could be utilized for finger printing.

All finger prints should be recorded in the Federal Bureau of Investigation, thus relieving an institution or Board of the necessity of reading and identifying finger prints. However, in our medical schools some faculty member may become interested in the fascinating hobby of reading finger prints. If the school has such an individual, he could assist in identifying transcripts and other school records. We can all recall instances in our own schools in which we could have avoided embarrassment if we had used more care in securing definite identification.

Within the past month, we have read in the *Journal of the American Medical Association* and in *Time* of "The Strange Case of J. H. Phillips." This man, you will recall, posed, quite successfully, as a surgeon in CCC Camps and in a California hospital. The discovery of this imposter was purely an accident. Phillips, it appears, was not familiar with the California law which requires licensed physicians to write their given names in full on prescriptions. He, it appears, had a life long history of crimes and prison sentences, but there was one episode in this strange story that especially concerns schools of medicine. It is reported that in 1930, Phillips, in some manner, succeeded in securing a diploma

from the University of Tennessee School of Medicine. The diploma, the report states, was secured by Phillips by posing as a former graduate of the school by the name of Dr. James H. Phillips.

The University of Colorado had a somewhat similar case about twenty-five years ago. Two men with the same name, except for the middle initial enrolled in the freshman class at the same time. Student A flunked out of school at the end of the first quarter. Student B was a brilliant student who transferred to Harvard for his last two years and was graduated with honors. Shortly after graduation Student B died. The death of Student B evidently came to the attention of Student A, since he assumed the middle initial of Student B and wrote to the University of Colorado for a transcript of the two years' medical work of Student B. The transcript was sent and Student A used it in securing admission to the Junior Class of Tulane University of Louisiana School of Medicine where he graduated. Student A practiced medicine for several years but he made the mistake of attempting to enter the United States Public Health service. This revealed his true record, and his license was revoked.

I am sure that each medical school dean present could cite from his own experience cases showing that there is a serious defect in our identification methods. How can we avoid these serious and embarrassing situations? It is my contention that they can be avoided by finger print records of all medical students. If the University of Tennessee had required finger prints of all medical students, it could have required J. H. Phillips to submit his finger prints for checking before issuing to him the diploma of Dr. James H. Phillips. If the University of Colorado had required finger prints of all students it could have demanded the finger prints of Student A before sending to him the transcripts of Student B. All medical school diplomas should carry the graduate's finger prints on the back. Before reissuing any medical school diploma, the applicant should be required to appear in person and be re-finger printed.

The requirement for finger printing should also be adopted by all State licensing boards. Applicants for licensure should be required to present medical school diplomas showing finger prints on the back. The applicant should, then, be finger printed by the Board for checking. This procedure should also apply to those seeking licensure by reciprocity.

Finger print identification should also be carried out by the National Board of Medical Examiners and by all Specialty Boards. In fact, all certificates of special achievement which might be stolen and used illegally or to the embarrassment of the owner should carry fingerprint identification.

As stated earlier, the ideal would be universal finger printing and the use of finger prints for identification on all legal and semilegal papers and documents. If this cannot be achieved, medical schools and the medical profession should lead the way by using finger print identification as has been outlined.

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DISCUSSION

DR. THOMAS L. PATTERSON (Wayne University): I would like to ask Dr. Rees if he knows about how many medical schools are finger printing medical students and, secondly, if this method is being used at Colorado?

DR. WALLER S. LEATHERS (Vanderbilt University): I would like to ask Dr. Rees to explain a little more in detail the method which they use in Colorado. Do you have some one person in charge?

DR. MAURICE H. REES: In reply to Dr. Patterson, practically all medical schools are using the finger print method through the Army and the Navy. So far as I know, there are no schools definitely using this method for their own records. We have a committee at our school to organize it. The Health Committee of the school got forms ready, and everything was all set to do this finger printing in connection with the physical examination. When the Army came along and was finger printing all of the students, they discontinued it. So it is not being used in our own school now. I just throw this out as an interesting possibility, but cannot cite at present any experience in our own school.

The Teaching of Psychiatry to Undergraduate Medical Students*

SPAFFORD ACKERLY

Professor of Psychiatry, University of Louisville School of Medicine
Louisville, Kentucky

In 1932, Dean John Walker Moore laid the foundations for the present Department of Psychiatry and Mental Hygiene. He did this in four ways:

1. By inviting the Louisville Mental Hygiene Clinic, supported by the Community Chest, to become affiliated with the Department of Psychiatry of the Medical School.
2. By rotating all interns on medicine through the psychiatric department, two juniors, six weeks; one senior, two months, and each assistant resident on medicine spending six months as resident on psychiatry.
3. By creating a teaching staff of 3 full time psychiatrists through an original Commonwealth Fund grant.
4. By actively supporting the expanding program designed to keep uppermost in the student's mind the therapeutic and preventive attitudes—the double edged sword of the general practitioner.

With this brief introduction, I will outline our four year teaching program in psychiatry for the undergraduate medical student.

We have been experimenting for some time with a course in fundamentals for freshmen. It early became obvious that students do not grasp fundamentals by passively accepting lecture material. Therefore, four years ago, we divided each freshman class into four seminar groups, each group meeting weekly for four two-hour sessions. The entire class also met eight times for purposes of orientation and discussion of assignments before written quizzes, and to hand in personality studies on themselves. With the exception of the personality studies, which we have dropped, the above outline is essentially the same today though the seminar content is constantly being revised.

There are a number of advantages to this seminar method over the lecture method. In the seminar method one has an opportunity of examining critically the content of the discussions and experimenting with new material four times each semester. Students are told that these seminars are their seminars and are conducted for the purpose of airing their opinions and organizing their knowledge concerning so-called normal variability.

The first seminar focuses on the general topic framed in the form of a question—"What is normal behavior?" Some definition is used as a starting point, and the students elaborate on this, bringing in qualifying concepts of age, race, cultural traditions, early care and development, food, climate,

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geography, etc., etc. This inevitably leads to a discussion of the relative influence of heredity and environment. Studies of twins and quintuplets usually make the discussion rather lively at this point. The organism as a whole with its handicaps of heredity and environment and what constitutes psychophysical compensatory mechanisms of the organism are discussed in relation to the facts of physiologic medicine.

The first seminar ends with the concept that normal behavior is that which is appropriate and effective action on any level that a particular situation demands, from the simple reflex to the highest symbolic levels of performance. The second seminar is devoted to a discussion of the variability in human physique and temperament from Hippocrates to Sheldon. The third seminar stresses the difficulties in the path of integrated behavior as brought out by extirpation experiments on the brains of monkeys and neurosurgical clinical material in the human. The fourth seminar is attended by an instructor in the department of anatomy and embryology and the students are given an opportunity to discuss with him the concept of the organism as a whole, reminding them of their previous work in embryology, especially the work of Coghill on early total behavior patterns, e.g., the salamander. The students are then encouraged to use these concepts not only in relation to man as a whole, but also to the functions of man in society, using Gerard's article, "Science, Organism, and Epiorganism" as a stimulus.

The next semester, or the first semester of the sophomore year, the class has eight hours of orientation, discussion of the text assignments, and written quizzes. We deliberately require the students in this course to read about the minor disturbances before they are exposed to the reading and demonstrations of the frank psychoses.

Again, the class is divided into four seminar sections, each section meeting two hours a week for four weeks to apply the knowledge of fundamentals gained in the freshman year to the study of the "prebreakdown" personalities of actual patients on the psychiatric wards. At each of the four sessions, the Resident presents a patient, briefly outlines the breakdown symptoms, and then the students question the Resident and the social worker on the facts in the life history of this patient before he broke down. The first patient interviewed is usually a paretic because it is known that well integrated preparetic personalities withstand the insult of brain syphilis better than those with poorly integrated personalities. Not only are they more resistant to the ravages of the spirochete, but also treatment is more effective. At each of the other seminars, patients with major and minor psychoses are shown and the students attempt to evaluate the assets and liabilities in their prebreakdown personality patterns in order to understand the patient as a person.

Specific psychopathology as such is not emphasized in these sophomore seminars, but in the last session the professor of general pathology participates in the discussion which serves as an introduction to the subject of pathology of function as well as structure.

How novel it must have sounded in that prelaboratory era when the brilliant analysis of symptoms was all absorbing, to have Sir Wm. Osler say, "The good physician treats the disease, but the great physician treats the patient who has the disease." Today students are taking this for granted. Thus, they are eagerly looking forward to their clerkship year to study patients as persons. Much can be pointed out in these seminars on the prebreakdown personalities of patients to show how these individuals have not used appropriately or effectively the apparatus that evolutionary development has given them. Students can be shown how easy it is for man, when frustrated by difficult and painful life situations, to fall back on the lower or rather older levels of functioning, utilizing the pleasure-pain principle for comfort and escape, rather than tax the more recently acquired levels of thought, contemplation and social feeling which lead to survival and progress.

These seminars end with a discussion of how these patients, if given opportunities for the development of more healthy human relationships, education and training, could have built up greater resistances to stress—toxic, bacterial, economic, social—and could have developed keener appetites for the struggle for existence.

Thus, the seed is early planted in the students for the growth and development of the preventive and therapeutic attitudes.

In the second semester of the sophomore year, there are three separate courses:

1. 16 hours of psychopathology to the entire class, including discussions and demonstrations by means of motion pictures and actual patients presenting frank symptoms of mental disease with or without demonstrable organic changes. Along with this go reading of the text and periodic written quizzes.

2. 5 hours in conjunction with the course in physical diagnosis. This is conducted in the following manner. After sections of students have listened to a group of patients with heart murmurs, for instance, one of the patients is selected to demonstrate before the entire class. The Resident on psychiatry and the social worker have worked up the history of the patient. The instructor in psychiatry then presents the patient as a whole, demonstrating, where possible, the psychosomatic interrelationships involved in the general treatment of this person with heart disease.

3. A one hour seminar to introduce the principles of therapy in general. The class is again divided into four sections, each section having four one hour sessions. Various therapeutic approaches are touched on with an actual patient present at each session.

With this background of fundamentals, we feel that the students are now reasonably well prepared to do their junior clerkship work on the psychiatric wards, an acute service of 40 beds. Each section of twelve students spends five hours a day for three and one-half weeks in this work. Routine physical, neurological and laboratory examinations are made on each patient assigned and complete psychiatric histories taken. Since 1932, students have made routine

home investigations on every patient and as only residents of Louisville and Jefferson County are admitted to the wards, practically all of the students have an opportunity of visiting with the families and evaluating the home conditions of at least two patients.

Each patient who is at all accessible has regularly scheduled individual therapeutic interviews with members of the staff, with one or more students sitting in as observers. The needs of these patients and the difficulties they have experienced in making an adjustment are so obvious that the student is able to see what the staff man is trying to do for the patient whether his efforts are successful or not. It enables the students to talk to the patients in a much more friendly and easy manner after they have sat in on these interviews. It also gives them a first hand glimpse into the meaning of the therapeutic attitude which they say is so helpful to them in the senior year when they attempt to treat milder and more subtle conditions referred to the outpatient psychiatric clinic.

Clerkship students are given an insight into the role played by the psychiatric nurse and social worker in the treatment of the patient as well as such procedures as shock therapy, hydrotherapy, occupational therapy and physiotherapy. They are also given instruction on diagnostic procedures, such as intelligence and personality tests, air encephalograms and electroencephalograms.

Introduction to child psychiatry is given to junior clerkship students on pediatrics. They are given an opportunity of observing at the Nursery School, the Mental Hygiene Clinic and the Children's Center for delinquents, and special case material is presented.

Each student presents each of his cases in a formal staff conference in which the patient is interviewed and diagnosis, prognosis, treatment and disposition are discussed before the group. It is gratifying to the students at these conferences to feel that they have a well rounded picture of their patient, having visited the home and talked with relatives. They often have more factual information than the interns and staff which makes the student feel he is playing an important role in the entire procedure—as he most certainly is.

The handling of relatives of psychiatric patients is the one thing that taxes the resources of interns to the limit, and yet we rarely, if ever, receive a complaint from relatives about the way they were handled by the junior medical students. In fact, the cooperation of difficult relatives has often been gained by the student's visit to the home.

If, however, the psychiatric training of the undergraduate stopped here, he would be ill-equipped to understand the role that psychiatry has to play in the general practice of medicine. Up to now, the students have worked only with cases of frank mental disorder which constitute a small percentage of the average doctor's practice. Indeed, the student's training in psychiatry so far is but a preparation for the understanding of the emotional element in all illness, but more especially in those patients who are suffering primarily from some form of mental or emotional maladjustment—a rather considerable proportion of any doctor's practice.

Therefore, we consider our senior clerkship teaching service, conducted in the outpatient psychiatric clinic, the most important in the curriculum. Concerning the organization of this outpatient clinic as a clerkship service—there are from six to eight senior students to a section, spending from two and one-half to three weeks full time on this service. Patients in this clinic for the most part, are referred by other clinics and after discharge from various wards of the Hospital. The psychiatric clinic takes over the space of the Medical Clinic in the afternoons so that each student has his own interviewing room. Three full time psychiatrists are in attendance. Each psychiatrist assumes the supervision of two and sometimes three senior students. Two or three patients are assigned to each student. As a rule, a few children are assigned to each group.

Patients are instructed that they are expected to keep daily appointments with the students (except Tuesday and Saturday) until dismissed. The instructor sits in with the student and patient twice a week (Monday and Friday)—to observe the student in action with his patient. Other days, the students are on their own with their patients, but they can consult the psychiatric social worker, who is always in attendance, or call the staff man, if necessary. Complete physical and routine laboratory examinations are conducted on each patient and the case is conferenced for the benefit of the group, the patient appearing and his progress to date is summed up by the staff. Senior students are not required to write up long formal detailed histories as are the junior clerkship students. However, the senior student is requested to write up fully what transpired in each interview with his patient. Near the end of the clerkship period, the meat is extracted from these progress notes, gaps in factual information on the family and personal history are filled in, and the progress of the case is summarized briefly.

Besides the orientation discussion in psychotherapeutics the first day on service and assigned reading on the subject, there is also conducted a weekly treatment seminar in which each student discusses before the group his successes and failures in enlisting his patient's cooperation in treatment. At this seminar the students discuss practical treatment goals for their patients, and the role the student himself plays in the total therapeutic procedure.

The most important feature of the senior clerkship teaching is the way in which the instructor, after sitting in with the student and his patient, discusses with the student patterns and trends underlying the patient's symptoms and points out the possibilities at hand in helping the patient to understand his real needs and how best to meet them.

The senior clerkship service is designed to give the student the opportunity of working on his own with patients and yet receiving sufficient elbow instruction to make the clinic service a growth producing experience for both patient and student. Follow-up contacts with these patients by the instructors showed that more than 60 per cent were improved and as far as we could judge from the patients' own stories, none has been made worse by the experience.

The type of patients referred to the outpatient psychiatric clinic and assigned to senior students falls for the most part under the caption in the

Standard Nomenclature of Simple Adult Maladjustment with Somatic Complaints. We do not believe in putting a label of psychoneurosis on patients unless the symptoms have been fairly well crystallized over a long period of time or the psychoneurotic mechanisms are obvious. We would much rather make an error here in favor of the patient because all of us know how difficult it is for a patient to live down the diagnosis of psychoneurosis in his record. It is too often true that "once a psychoneurotic always a psychoneurotic." This is not the case with the diagnosis of simple adult maladjustment. For instance, a woman, aged 30, whose husband died five years previously was referred to the Outpatient Psychiatric Clinic for generalized weakness and fears that kept her confined to her house. The student recognized that she was doing considerable passive day dreaming over love affairs. He also discovered that her real underlying difficulty was a fear that she would turn out to be a "bad woman" if she did not make herself stay close to her home. After ten interviews with the student, she began to lose her fears and somatic complaints and when she came back that summer for the routine follow-up she was still free from these complaints. The important point in the student's therapy here was his clear realization that he had to pick his way carefully between Scylla and Charybdis in his treatment or he might be caught holding the bag of responsibility for this lady's future behavior. We would not label this woman a psychoneurotic but a case of simple adult maladjustment.

One of the first things students are taught concerning therapy is that "you can do an awful lot for people without helping them." It is very gratifying to see how students can build up a patient's self esteem, confidence and faith in himself to the point where he wants to face his own problems and do something about them. Left to themselves, these same students could easily and often do increase a patient's immature dependence on others rather than help him to help himself. The student soon learns not to expect from his treatment any more dramatic changes for the better in the total behavior of his patient than from digitalis, for instance, in the behavior of a poorly functioning heart. A student has a right to be pleased when a patient, for the first time in many months, gets up in the morning, prepares breakfast for her family and gets the children off to school. That is good doctoring. It is surprising how many patients improve by seeing the student daily for from one to three weeks. Just why this is so in some cases is an interesting subject for speculation on the part of both students and staff. So often we come back to the simplest explanation and say, "I guess it must have been the amount of time given and genuine interest shown." Patients quite frequently say, "It gave me the toe-hold I needed."

Students soon learn their limitations, however, when they are assigned dyed-in-the-wool, crystallized psychoneurotics and realize that these cases should be referred to specialists in this field. However, only about 10 per cent of patients in our outpatient clinic would fall in this category.

We have been teaching senior students to do this sort of therapy in our clinic during the past five years and we are frank to admit that it taxes our knowledge and experience to the utmost. Each staff member is on the spot.

His therapeutic aims, goals and results are more or less an open book to both students and other staff members. Regardless of the type of teaching, it seems almost impossible to help some students make "horse sense" out of their patients' problems. However, the majority of our senior students are interested in therapy, are eager to learn, and, more often than not, see improvement in their patients before leaving the service.

To carry out individual clerkship instruction such as this requires a seasoned staff. Too much credit cannot be given each member of this staff for the part he has played in making this teaching program possible. There is no doubt in our minds that students, especially those going into general practice, need this sort of psychiatric clerkship training before they leave the medical school. The chances are they will never have another opportunity of working with patients under such close supervision. This is not so true of other branches of medicine where the young practitioner can more easily check his methods and results with others and know that he is practicing scientific medicine.

To impress the students with the importance of psychiatry in their medical school training, they are given an opportunity before they leave the service of meeting with practicing internists who have taken this training and are now applying it in their practice. Students are eager to obtain first hand knowledge from medical men themselves and it is gratifying to the staff to have these men participate in the teaching program. These men have also had approximately one year of psychiatry during their internship and medical residencies at this hospital and therefore their experience in practice provides a valuable contribution at this point in the student's training.

This completes the four years of psychiatry—the result of considerable experimentation. We feel very fortunate to have seen the entire program in full operation this past year. For us, it will stand as the best we have been able to do to date and we hope it will prove a contribution to basic medical education. Much of the credit, if it be such, goes to the students themselves whose expressed needs we have tried to meet and have never gone beyond.

DISCUSSION

DR. CARLYLE F. JACOBSEN (Washington University): I would like particularly to emphasize a point in Dr. Ackerly's presentation which he has not, at least, overtly stressed, and that is, in his plan of teaching psychiatry he has essentially given psychiatry to the students, let them handle it, let them participate in it, rather than give a series of demonstrations.

I can speak with a good deal of personal gratitude to Dr. Ackerly, in that we have had on the staff of Washington University during the past year one of the younger men who received training under Dr. Ackerly. His contribution to our teaching has been quite gratifying, and particularly has borne fruit along the line of allowing the student to participate, removing some of the cloud around the teaching of psychiatry and the practice of psychiatry, giving the student the opportunity to experience and grow, an opportunity to feel that he has techniques that are valuable and that can help his patient, even though he has not had any profound training in psychiatry.

Study of Applicants for Admission to the 1942 Freshman Class of the Medical Colleges of the United States

FRED C. ZAPFFE

Secretary, Association of American Medical Colleges
Chicago, Illinois

This study is of more than passing interest since it is based on the first class to enter medical schools under the war program. At the close of the 1941-1942 session in May and June, virtually all medical schools adopted the accelerated program as recommended by the Association of American Medical Colleges. At this time, all but two medical schools are operating on this program. The war needs, as well as civilian needs, for physicians, undoubtedly stimulated a greater number of college students to enter medicine in 1942 than in previous years, although early in 1941, the Association of American Medical Colleges urged its member colleges to accept more applicants than in preceding years—10.0 per cent if possible. The result of this urging was an increase in the freshman student body of about 9 per cent. These students began the study of medicine in the Fall of 1941, before Pearl Harbor. The following February (1942), the Association voted favorably on the accelerated program. The present freshman class, therefore, not only represents an increased student body but also the first to come under the accelerated program. Sophomore, junior and senior classes also accelerated at this time.

It was to be anticipated that the opportunity to complete the usual four years course of medical study in three calendar years would increase the number of applicants—but what actually happened was a surprise. The number of applicants in 1942 increased by 20 per cent. In 1941, there were 11,940 applicants; in 1942, there were 14,043! Is this increase to be ascribed to patriotism or to the fact that medical students are deferred from service, temporarily (until they have completed one year of internship)—or because of the opportunity to escape enlistment and to join the officers corps? Certainly, there was a reason, whatever it was. Naturally, the number of total applications made by these applicants also increased, from 34,665 in 1941 to 39,111 in 1942, an increase of 5,554 applications, or nearly 13 per cent.

Every one knows that there has been a large demand for medical officers for the armed forces. The layman was convinced that more and more physicians would be needed. Perhaps, this fact may account for the increase in the number of applicants. One never knows. Any opinion is more or less guesswork in the absence of proven facts.

Table 1 presents the complete data on applicants and applications for the past four years. It should be noted that the number of applicants making only one application was considerably greater than the number who made more than one application, far more so than in the preceding three years. Naturally, with the increase in the number of applicants, the percentage of accepted applicants is

smaller than in preceding years although the actual number is greater. The capacity of the medical schools definitely is a limitation to the acceptance of students. Every school can accept only so many and no more. As a matter of fact, since 1941, virtually all medical schools have strained their facilities to the utmost in order to help out in the carrying on of the war program, enrolling more students than they actually want. The quality of instruction must not be impaired. The decrease in the number of qualified instructors, the result of many faculty members entering service, has placed an additional strain on medical schools—and on remaining instructors. As a matter of fact, several schools were facing closing if their faculty were reduced further in numbers. Fortunately, timely government action forestalled this happening.

TABLE 1.—TOTALS OF APPLICATIONS AND APPLICANTS FOR FOUR YEARS*

	1939	1940	1941	1942
No. Applications	34,871	34,434	34,665	39,111
No. Applicants	11,800	11,854	11,940	14,043
Single Applicants	6,089	6,146	6,110	7,314
Accepted	3,064	3,161	3,341	3,489
	50.3%	51.2%	54.7%	47.7%
Multiple Applicants	5,771	5,708	5,830	6,729
Accepted	3,147	3,167	3,481	3,346
	55.1%	55.5%	59.7%	49.7%
All Applicants Accepted	6,211	6,328	6,822	6,835
	52.7%	53.4%	57.2%	48.7%

*In 1941, all medical colleges were urged to accept 10 per cent more students than in the previous year. The accelerated course became effective in 1942.

It will be noted in table 1 that the actual number of students accepted was slightly greater than in 1941. But, it must be remembered that the result of increasing the size of the student body and of acceleration of courses will not become apparent until June or July, 1945, when the first of the classes working on this war program will graduate. But this will mean the saving of one whole year. Ordinarily, under the usual program, 1942 freshmen would not have graduated until June 1946. But the class which began study in the Fall of 1941 accelerated in July 1942. Therefore, this class will graduate sometime in the Fall of 1944 or early in 1945. This was the first class of larger numbers because of the urging of the Association of American Medical Colleges. The enrollment for this class, as reported to the Association at the end of the academic year in June, 1942, was 6,420. How many of that number will graduate? If the figures on this point, which have held good for many years, hold good now, not more than 5,200 students will graduate, a loss of about 20 per cent.

Table 2 presents the data on the women applicants. As was to be expected, the number of these applicants was greater than in the preceding year, nearly 25 per cent, but the number of applications made by the 810 women applicants was about 20 per cent less than in 1941. Never before did so many women seek admission to medical school and never before were so many accepted. For the 1942 session, all but twelve medical schools accepted women applicants. Each

year, some school departs from its policy of not accepting women. Women are good students. They hold their own well with the men as is shown by the report on the accomplishment of all students which is published annually in this JOURNAL.

Although the percentage of acceptances of applicants is considerably smaller than in 1941 or any preceding year, actually more applicants were accepted. The difference is due to a larger number of applicants and the limitations under which medical schools labor which preclude the acceptance of more students.

TABLE 2.—TOTALS OF APPLICATIONS AND WOMEN APPLICANTS FOR FOUR YEARS

	1939	1940	1941	1942
No. Applications	1,536	1,621	2,283	1,803
No. Applicants	632	535	636	810
Single Applicants	377	341	360	469
Accepted	174	178	180	210
	46.1%	52.2%	50.0%	44.8%
Multiple Applicants	255	244	276	341
Accepted	147	125	145	161
	57.6%	51.2%	52.2%	47.2%
All Applicants Accepted	321	303	325	371
	60.8%	51.8%	51.1%	46.0%

Table 3 presents data on acceptances according to years of college work. The minimum standard for admission to medical schools prescribed by the Association of American Medical Colleges has for many years been two years of college work with prescription, as to subjects and time or credit, in biology, physics, chemistry and English. As a matter of fact, only nine medical schools publish this requirement as the standard for admission for their students. But, only very few students having had only two years of college work, or even two and one-half years, are admitted. The reason is that these colleges are able to select their quota of students from the group which presents more than the

TABLE 3.—ACCEPTANCES ACCORDING TO YEARS OF COLLEGE WORK

	Single Applicants		Multiple Applicants		Total No.
	No.	Accepted	No.	Accepted	
2-3 years	692	238	178	67	870
3-4 years	2,631	1,583	1,984	996	4,615
4 or more years	576	226	574	236	1,150
A.B. degree	1,410	699	1,143	1,188	3,553
B.S. degree	1,287	608	1,798	892	3,075
Other degrees	84	37	50	16	134
Not stated	634	98	12	1	646

minimum credit. It is an accepted fact that three years of college work gives more opportunity to secure a good foundation for the study of medicine than two years can. Only one medical school prescribes the bachelor's degree as the minimum standard for admission. One school, which prescribes three years of college work, is able to draw its students from the bachelor degree group. Several other schools prefer to get these students and therefore, select largely from this

group, but they do accept students who have had only three years, even only two years, of college work. It has been demonstrated year after year, in the study of student accomplishment, that the two year students do very creditable work in medical school, mainly, no doubt, because they are selected very carefully and only those who have a high grade of scholarship are accepted. The mere possession of a degree does not, by any means, indicate good scholarship. That, too, the study of accomplishment shows clearly. Often the two year students lead in accomplishment.

It is interesting to note in table 3 that the increase in applicants in 1942 occurred among the students who did not have a degree. The two years college group, particularly, increased tremendously. The degree holding group, on the other hand, diminished considerably, especially the students who held an A.B. That would indicate that there was a "rush" on the part of the two year students to get into medical school.

In 1942, 6.2 per cent of all applicants had less than three years of college work as against 3.7 per cent in 1941. For the three years group, there were 32.9 per cent as against 29.9 per cent in 1941. For the A.B. group, the figures are 25.3 per cent in 1942, as against 31.7 per cent in 1941; B.S. students, 21.9 per cent in 1942; 23.9 per cent in 1941. In 1941, only 89 students with less than three years of college work matriculated; in 1942, 104 out of approximately 6,400 students were in this group. It should also be pointed out, that not all accepted students matriculate. Every year, nearly 10 per cent fail to enter medical school. The reasons for this fact are not known, although in some instances it is known that some students apply solely to find out whether they will be acceptable and remain in college for another year for further preparation. Some students cannot make it financially and must wait a year before matriculating; and some change their mind.

It is also interesting to note how many applicants in each group are accepted. The figures on this point are as follows: Two years, 35.0 per cent; three years, 55.9 per cent; 4 or more years, 40.1 per cent; A.B., 51.7 per cent; B.S., 48.8 per cent. In 1941, the percentages of acceptance were higher in all groups: Two years, 44.0 per cent; three years, 60.6 per cent; 4 years, 42.4 per cent; A.B., 59.2 per cent; B.S., 59.7 per cent. The differences were, no doubt, due to the fact that in each group there were a larger number of applicants in 1942 than in 1941.

The important point which is evidenced by these figures is that the length of preparation is not the criterion of acceptance. Acceptances are based, in the main, on scholarship, the aptitude test rating and other aids to selection used by medical colleges.

Inasmuch as nearly one-half of the applicants make more than one application—the so-called multiple applicants—it is a matter of, perhaps, merely passing interest to know how many applications these students make. Table 4 gives this

TABLE 4.—DATA ON 6,739 MULTIPLE APPLICANTS
NUMBER OF APPLICATIONS MADE, ACCEPTANCES AND REJECTIONS

2205 made 2 applications each	97 made 12 applications each
1094 had no acc	58 had no acc
825 had 1 acc	26 had 1 acc
280 had 2 acc	8 had 2 acc
1305 made 3 applications each	3 had 3 acc
621 had no acc	1 had 6 acc
455 had 1 acc	1 had 8 acc
191 had 2 acc	
38 had 3 acc	46 made 13 applications each
848 made 4 applications each	24 had no acc
378 had no acc	14 had 1 acc
299 had 1 acc	3 had 2 acc
117 had 2 acc	3 had 3 acc
44 had 3 acc	1 had 4 acc
10 had 4 acc	1 had 5 acc
606 made 6 applications each	47 made 14 applications each
289 had no acc	27 had no acc
199 had 1 acc	17 had 1 acc
67 had 2 acc	2 had 2 acc
36 had 3 acc	1 had 3 acc
12 had 4 acc	47 made 15 applications each
3 had 5 acc	30 had no acc
427 made 6 applications each	12 had 1 acc
217 had no acc	2 had 2 acc
131 had 1 acc	3 had 5 acc
50 had 2 acc	35 made 16 applications each
20 had 3 acc	27 had no acc
6 had 4 acc	3 had 1 acc
2 had 5 acc	2 had 2 acc
1 had 6 acc	2 had 3 acc
303 made 7 applications each	1 had 7 acc
161 had no acc	34 made 17 applications each
88 had 1 acc	17 had no acc
31 had 2 acc	13 had 1 acc
12 had 3 acc	4 had 2 acc
6 had 4 acc	18 made 18 applications each
5 had 5 acc	14 had no acc
203 made 8 applications each	4 had 1 acc
117 had no acc	17 made 19 applications each
62 had 1 acc	9 had no acc
21 had 2 acc	5 had 1 acc
7 had 3 acc	2 had 2 acc
1 had 4 acc	1 had 5 acc
162 made 9 applications each	13 made 20 applications each
91 had no acc	11 had no acc
46 had 1 acc	2 had 1 acc
16 had 2 acc	9 made 21 applications each
6 had 3 acc	5 had no acc
2 had 4 acc	4 had 1 acc
1 had 5 acc	10 made 22 applications each
132 made 10 applications each	5 had no acc
82 had no acc	5 had 1 acc
35 had 1 acc	8 made 23 applications each
9 had 2 acc	6 had no acc
1 had 3 acc	1 had 1 acc
4 had 4 acc	1 had 2 acc
1 had 5 acc	9 made 24 applications each
107 made 11 applications each	6 had no acc
73 had no acc	1 had 1 acc
26 had 1 acc	2 had 2 acc
3 had 2 acc	
3 had 3 acc	
2 had 4 acc	

7 made 25 applications each
6 had no acc
1 had 1 acc

6 made 26 applications each
3 had no acc
2 had 1 acc
1 had 2 acc

2 made 27 applications each
no acc

2 made 28 applications each
1 had no acc
1 had 2 acc

3 made 29 applications each
2 had no acc
1 had 1 acc

1 made 30 applications
no acc

1 made 31 applications
1 acc

3 made 32 applications each
2 had no acc
1 had 1 acc

1 made 35 applications
no acc

2 made 36 applications each
no acc

1 made 37 applications
no acc

information. About one-third made only two applications and about one-half of that number were not accepted. Less than one-third had one acceptance; about 13 per cent had two acceptances. As the number of applications increases, the number of rejections increases and the number of acceptances decreases correspondingly. Some very good students make two or three applications to the schools of first, second and third choice to make certain, no doubt, of being accepted by one of these schools. There are many instances of acceptance by all schools to which these students apply. The largest number of applications—to as many medical schools—made by one applicant was 37. (In one year, it was 45.) None of the applications was accepted. Only eight of these high multiples failed of being accepted. These eight applicants made 233 applications, from 27 to 37 applications. Some of these applicants try again the following year and often are accepted because they have had another year of college work and have succeeded in raising their scholarship, thus warranting acceptance.

Table 5 presents the data, for each medical school, on the number of applications received, the number accepted and the number of applicants who enrolled. Eight medical schools reported having received more than one thousand applications. These mean an enormous amount of work for the admissions committees. Of course, in many cases, no action was taken on an application, either because the quota had already been accepted or the data submitted were insufficient, or incomplete, for consideration of the application. One cannot help but wonder how much work and time is entailed on the registrars of the arts colleges who must furnish the student with a copy of his record especially when about 32,000 applications were multiples. This could prove to be a good source of income if an adequate fee were charged for transcripts of records. Many, if not all, medical colleges now charge a fee for evaluation of a transcript. This, too, is an agreeable source of income. Every little bit helps nowadays when income from all sources has been reduced—often considerably.

Finally, a count has been made of the states from which the applicants have made application. (Table 6.) It is assumed that this is also the home state. There is very little change in the order of the states according to the numbers of applications charged to them. For example, the first five are always the first

five, as is to be expected according to population. The increase of applications emanating from these five states in 1942 was not much greater than it was in 1941, ranging from 16.0 per cent for New York, 17.0 per cent for Pennsylvania to 25.0 per cent for Ohio. In the second group of five, there was a considerable increase: 30.0 per cent for Texas; 35.0 per cent for Michigan and

TABLE 5.—DATA BY COLLEGES ON TOTAL NUMBER OF APPLICATIONS MADE AND ACCEPTANCES (MEN AND WOMEN)

School	Total	Accepted	Students Enrolled	School	Total	Accepted	Students Enrolled
Alabama	259	58	53	Albany	696	56	44
Arkansas	307	87	82	Buffalo	793	105	75
College Medical				Columbia	1292	185	115
Evangelists	246	113	96	Cornell	1181	145	84
California	315	73	73	Long Island	1120	145	104
Southern California	344	74	61	New York Medical	877	104	96
Stanford	330	81	62	New York University	913	135	134
Colorado	96	65	61	Rochester	717	97	65
Yale	606	66	58	Syracuse	403	60	56
Georgetown	479	146	100	Duke	879	102	67
George Washington	896	122	77	North Carolina	134	49	49
Howard	413	83	75	Bowman-Gray	190	64	49
Emory	259	76	63	North Dakota	227	28	28
Georgia	127	86	76	Cincinnati	909	132	86
Chicago Medical	227	145	45	Ohio	275	85	84
Chicago	532	118	64	Western Reserve	463	96	90
Illinois	567	185	172	Oklahoma	232	81	75
Loyola	598	139	88	Oregon	327	84	69
Northwestern	1309	220	130	Hahnemann	1041	202	166
Indiana	1106	237	126	Jefferson	622	174	156
Iowa	190	100	100	Pennsylvania	800	176	130
Kansas	226	110	95	Pittsburgh	372	99	86
Louisville	857	168	92	Temple	1339	124	119
Louisiana	411	123	96	Woman's	184	77	39
Tulane	573	198	137	South Carolina	161	50	50
Johns Hopkins	387	103	77	South Dakota	77	32	26
Maryland	331	128	94	Meharry	333	117	65
Boston	548	128	63	Tennessee	597	202	71*
Harvard	850	147	147	Vanderbilt	472	60	53
Tufts	462	146	111	Baylor	316	111	84
Michigan	771	172	157	Texas	378	118	99
Wayne	235	83	79	Utah	108	50	39
Minnesota	508	140	124	Vermont	100	38	26
Mississippi	59	33	31	Medical Coll. of Virginia	599	107	80
Missouri	106	48	44	Virginia	339	94	76
St. Louis	1126	206	139	West Virginia	81	38	30
Washington	839	149	85	Marquette	532	158	97
Creighton	274	112	72	Wisconsin	155	77	72
Nebraska	185	93	86				
Dartmouth	91	29	24				

*July and September quarters.

Massachusetts and 105.0 per cent (!) for Minnesota. For the District of Columbia the increase was 50.0 per cent; for Oregon, 40.0 per cent; for Montana, 105.0 per cent; for Arizona, 50.0 per cent.

This study entails an enormous amount of work on the medical schools, but it is fully justified because it is the only source of information which is called for often by various agencies. It is only one of the many services which The Associa-

tion of American Medical Colleges renders. It makes it possible to assist medical colleges in the acceptance of students by letting them know whether an applicant has made previous applications for admission and what befell. Sometimes an applicant will deny having applied elsewhere, or in previous years. The cards in this file give the answer. It makes it possible to detect repeaters when they deny

TABLE 6.—GEOGRAPHIC DISTRIBUTION OF ALL APPLICANTS

	Single	Multiple	Total		Single	Multiple	Total
New York	809	1561	2370	Arizona	14	36	50
Pennsylvania	547	601	1148	Rhode Island	14	32	46
Illinois	424	396	820	Maine	14	27	41
California	369	420	789	New Hampshire	14	28	37
Ohio	343	388	726	Vermont	30	7	37
Texas	368	230	598	New Mexico	15	13	28
New Jersey	197	371	568	Delaware	13	9	22
Massachusetts	189	348	537	Wyoming	3	16	19
Michigan	290	185	475	Nevada	4	9	13
Minnesota	302	121	423	Alaska	4	—	4
Indiana	244	158	402	Hawaii	6	25	31
North Carolina	160	109	269	Philippine Islands	1	1	2
Georgia	176	67	243	Foreign Countries			
Virginia	163	64	227	Canada	7	8	15
Washington	66	160	226	Mexico	4	2	6
Missouri	148	76	224	Newfoundland	1	—	1
Wisconsin	162	65	217	Africa	1	—	1
Iowa	173	37	210	Asia:			
Tennessee	174	32	206	China	3	2	5
Oklahoma	141	63	204	India	1	1	2
Louisiana	154	48	202	Central & South America:			
Connecticut	48	152	200	Argentina	1	—	1
S. Carolina	123	63	186	British Guiana	1	1	2
Kentucky	113	72	186	Canal Zone	2	1	3
Alabama	114	66	170	Colombia	2	—	2
West Virginia	75	94	169	Costa Rica	4	—	4
Florida	80	88	168	Panama	1	4	5
Kansas	129	38	167	Uruguay	1	—	1
Maryland	107	55	162	Venezuela	1	2	3
Arkansas	127	24	151	Europe:			
District of Columbia.....	104	47	151	England	—	1	1
Oregon	94	56	150	Greece	—	1	1
Mississippi	93	44	137	Switzerland	—	1	1
Nebraska	108	29	137	West Indies:			
Colorado	71	41	112	Bahamas	2	—	2
Utah	55	50	105	Cuba	2	1	3
North Dakota	46	15	61	Haiti	1	—	1
Montana	26	32	58	Jamaica	—	2	2
Idaho	17	35	52	Puerto Rico	70	90	160
South Dakota	44	8	52	Virgin Islands	2	2	4

having failed in some medical school. These cards are kept in alphabetical order for five years, making available more than 200,000 cards giving information on nearly 60,000 applicants. Whoever needs the help these cards can give is welcome to the service.

Thanks are due, and are here given, to the medical colleges who helped to make this study possible.

Mass Hysteria

HUGH A. McGUIGAN

Professor Emeritus of Pharmacology and Therapeutics
University of Illinois College of Medicine
Chicago, Illinois

Hysteria is characterized by lack of control over acts and emotions, by exaggeration of the effect of sensory impressions. Bad enough when localized in an individual, hysteria may be a catastrophe when it infects the mass—and it is infective. Hysteria may concern the spiritual, the physical, or the economic life of mankind.

Belief in witchcraft probably started with one individual, but it spread like smallpox. It was not localized in Salem, but was pandemic. It infected men who thought they were appointed to guide others. Sir Thomas Browne wrote *Vulgar Errors* (1646) as a critical onslaught on superstition. Yet, Sir Thomas had a whimsical, credulous attitude toward many things. He believed in witchcraft and persecuted witches. The interesting thing about witches, to a medical psychologist, is the question: How did a person come to be adjudged a witch? We cannot tell positively.

A witch was usually an unfortunate individual, often with a hunchback or other deformity that attracted the attention of the masses. Parents were thought to have committed some sin which was visited on the children. People who believed this, and there were many, believed also that they were protecting themselves, and rendering Divine service, by persecuting the witches or by torturing them to death.

Modern belief is that many of the deformities which condemned people to be adjudged witches were due to lack of vitamins. And, stranger to say, today we have much mass hysteria, both for and against the use of vitamins.

In certain liturgies the congregation says: "We all like sheep have gone astray," etc. This is an admission that is quite applicable to human mass hysteria. A French author depicted how a man with an animus against his neighbor found this neighbor taking a drove of sheep across the river on a ferry. To vent his enmity and remain within the law, he purchased one of his neighbor's sheep at an exorbitant price, and rode over the river with him and his drove. In mid-stream he pushed the purchased sheep overboard, and the whole drove followed. All the sheep went astray. People in mass often act like sheep.

The vitamin literature with which we are all being doused, we take to be like sheep. Like water, vitamins are good, up to a certain amount. Beyond this amount they are useless and expensive luxuries in which we drown.

A mass hysteria has lately developed against the use of the vitamin nicotinic acid. It has been proven definitely that many of the symptoms of pellagra in man are cured or prevented by nicotinic acid. Consequently, the food and nutrition board of the National Research Council advised that "Enriched Bread" be sold

that contained added nicotinic acid and other vitamins. This is a scientific attempt to promote the public welfare.

However, it came to pass that certain puritanic minded people object to being compelled to eat bread with nicotine in it, or anything derived from tobacco. What are the facts?

Nicotinic acid can be prepared from nicotine, but the nicotinic acid used in bread, and to treat pellagra, is a synthetic chemical. It no more resembles nicotine than ashes after cremation resemble the original individual. In fact, the term nicotinic acid was coined many years ago because it was first made by the oxidation of nicotine, but in the making the nicotine was destroyed and the name has a historical relation only.

As a result of this mass hysteria against the name, and an attempt at appeasement, the Food and Nutrition Board has changed the name "nicotinic acid" to "niacin" (nai'-sin). The administrators of the Federal Food, Drug and Cosmetic Act have agreed to accept the change. If we give this term its chemical relationship name, it is a hydrocarbon of the benzene series.

This hysteria concerning nicotinic acid again recalls other causes of hysteria about foods. Years ago, in the early days of "Pure Foods," to damn a product and retain some semblance of chemical, not mental, honesty, all that need be done was to dub it a "coal tar" product. This was sowing the seed of mass hysteria. Coal tar is known more or less by every one, something that smears the fingers and clothes, hard to get rid of, and something that most people would admit is far from being a food. To deflate a reputation, all that was necessary was to prove or insinuate that a person was tarred with the same brush as some despicable person.

However, many useful things are prepared from coal tar. A substance that will yield such beautiful colors, and so many valuable drugs, cannot be altogether vicious. Today we know that coal tar products move the world. They are found in gasoline, vitamins, sex hormones, and are often found as a natural product in foods and medicines.

Some of the coal tar products that drew the ire of the pure food fathers were saccharin, benzoic and salicylic acids. In the early days of pure food administration, people were told these drugs were poisons, even though introduced to preserve the food, and their use in foods was forbidden, even though the total effect was beneficial to every one. The condemnations of these products were not done without some scientific authority, but even scientists may err, temporarily.

Science, however, is a poor field in which to sow error, and error has, at times, been introduced because some people apparently believe that the end justifies the means. If this be true in any phase of life, it is vicious, at least in scientific work. The laws of nature are not interested in ethics or morals. They are neither moral nor immoral, but rigidly unmoral. Cause and effect follow each other. Given conditions are followed by definite response without fail. But laws of nature are strictly impartial and dependable.

Saccharin is a coal tar product five hundred times sweeter than sugar. It is

not a food, and its only value lies in its sweet taste. It has been used to sweeten the food of diabetics who may desire a sweet tasting food, and who cannot tolerate sugar. It is quite harmless. Some may say that they should forego taste gladly, and stick to simple, plain, tasteless food. However, people have some indisputable rights and the satisfying of taste is one of these. There is an old Latin adage much quoted that says "*de gustibus non disputandum est.*"—Taste should not be disputed. It is a purely personal affair.

Saccharin was, for a time, forbidden in foods. Now it may be used if it is so stated on the label. The only possible objection to it is that it is not a food, and if it replaces sugar, which is a food, its use is a fraud to that extent.

Benzoic acid or salts of it were much used in catsups, etc., to prevent the growth of molds. To prevent its use, food administrators in the earlier days claimed it was a poison, and secondly, its use enabled manufacturers to use spoiled and rotten tomatoes to make catsups, etc. All such claims are errors and are now recognized as such. However, canned goods containing it must be so labeled. We believe that such a label does more good by telling the consumer that he is getting a more healthful and safer product than any other useful information it supplies.

Benzoic acid is found normally in many foods, particularly in cranberries, and on a vegetable diet, human beings may excrete as much as 30 grains per day. The trace added to food, therefore, can be but insignificant in effect. The discovery of its presence in natural foods had much to do with changing opinion regarding its action in the body.

It is as curious, indeed, to study the psychology of food administration as it is to study the fears and foibles of the masses. In popular lectures, chemists tell of the marvels of science, and foretell the day when we will be able to eat our food in pill form. We may carry a day's ration in the vest pocket. The inconvenience of cooking, etc., will be gone forever. In other words, chemical foods will be provided. Yet each attempt to use chemicals, like saccharin or preservatives, meets vigorous objection by the same men.

Hysteria that develops from worry over items like food, indeed over anything, is usually due to misinformation. This misinformation is often spread by people with an axe to grind. They are of two types: (1) Those interested in getting rich by the sale of goods, and (2) those interested in the enforcement of laws, but more interested in gaining fame. A conviction, whether deserved or not, is credited as merit for the enforcement officer. Both groups are often equally blamable. The first aims to steal your purse and may injure your health. The second too often suppresses some of the truth for a mess of pottage.

The cause of hysteria due to economic causes may not be eliminated until we have a new order, or until we find Utopia. Kipling sensed such a new order as a time and place where

"No one shall work for money, and no one shall work for fame,
But each for the joy of working, and each in his separate star,
Shall draw the thing as he sees it; for the God of Things, as they are."

A Study of the Results of the Examinations in Anatomy By the American Board of Surgery*

ALLEN O. WHIPPLE

Professor of Surgery, Columbia University
New York City

In recent years, a definite reduction in the total time assigned to the teaching of gross human anatomy has been made in many medical schools in this country. The reasons for this are many. The increasing demand by other departments, both preclinical and clinical, for more time to give instruction in the newer developments of medical science has steadily reduced the amount of time given to dissection and instruction in what is considered by many as a static subject. In many medical schools the department of anatomy is headed by experimental physiologists and biologists with the delegation of the teaching of human anatomy to less inspired individuals, and with the attitude of tolerance of a necessary chore. From time to time, a justification of this policy or a plea for still further reduction in time given to the teaching of anatomy appears; one of the most recent of these papers, written most convincingly and in charming style, was presented to the American Association of Anatomists by Dr. Alan Gregg at the meeting held in April of this year.

Much of the criticism leveled against the schools still devoting a major portion of one or more years to anatomy has been deserved, both as to the content of the courses and the method of teaching.

I can well remember the days and nights I spent during my first two years in medical school memorizing and dissecting anatomical structures that were of no importance whatsoever, structures to which the surgeon pays no attention and which mean nothing to the internist. On the other hand, I did not pay nearly enough attention to the relation of function to structure. However, in my second year I had the privilege of working as head prosector with Dr. George S. Huntington, one of the greatest comparative anatomists of his day, and his discussions of the embryological development of the various systems in relation to their anatomical variations and their vascular supply remain one of my permanent possessions. It was from him and one or two other instructors that I first learned the importance of relative values in anatomy.

Undoubtedly the revision of the hours and the content of the courses in anatomy have improved the curriculum in many schools. On the other hand, the results of the delegation of the teaching of human anatomy to young instructors without medical degrees or clinical experience and unable to point out to the first year medical student the relative importance of the various structures

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as they are memorized or dissected, are now beginning to appear in our young graduates, interns and residents. It is of this phase of the teaching of anatomy that I wish to speak, especially from the standpoint of our experience in the American Board of Surgery in examining in human anatomy.

The American Board of Surgery was organized in January, 1937. This Board is made up of representatives, some of whom are elected every two years for a six year term, from the American Surgical Association, the Surgical Section of the American Medical Association, the American College of Surgeons and the Southern, the Western, the Pacific Coast and the New England Surgical Societies. These thirteen members conduct examinations twice a year in the field of general surgery. Part I is a written examination, morning and afternoon, covering the clinical side and applied physiology, chemistry and bacteriology as well as anatomy and pathology. Part II is an all day examination, with bedside diagnosis and treatment in the morning and a practical examination in the afternoon in gross anatomy and surgical pathology. Part III is an operative inspection of the candidate working in his own hospital and an appraisal of the care of his patients.

Qualification to take these examinations requires at least one year of internship followed by five years of surgical residency or training under the direct guidance of a Founder Member of the Board. About 40 per cent of the applicants are not accepted because the hospitals where they have trained are below accepted standards. Of the accepted candidates from 15 to 18 per cent fail Part I, so that by the time candidates come up for Part II, they are a rather carefully selected group with a training far superior to the average intern or young surgeon practicing all over this country. The great majority of these candidates are highly trained surgeons with a great deal of actual operative experience and of mature judgment. One would expect, therefore, an unusual proficiency in these selected candidates in the subjects of clinical surgery, anatomy and surgical pathology. Our expectations have been realized in the examinations in clinical surgery, but not so in anatomy and pathology. The large number of failures in our first few examinations in pathology was quickly noised abroad and in the last three years our candidates have shown a marked improvement, many of them working for several months in laboratories of surgical pathology before coming up for the examination.

I am indebted to Dr. J. Stewart Rodman, Secretary of the Board, for the following data. To date the Board has examined 991 candidates. The general passing average is 75 per cent. Therefore, any candidate receiving less than that grade in any subject fails in that subject but does not necessarily fail the entire part. Of these 991 examinees, 175 failed, or 17.5 per cent. In examining the completed records of 921 of these, we find that 816 passed Part II on their first trial and that 105 failed. Of those passing Part II, 77

per cent received grades of 80 or better in clinical surgery, whereas only 57 per cent did so in anatomy.

In a review of the 105 candidates that failed Part II, 28 per cent received 80 or more in clinical surgery while only 17 per cent did so in anatomy. Furthermore, because the subject of clinical surgery is rated as 50 per cent, anatomy 30 per cent and pathology 20 per cent, the higher grades in clinical surgery are the more significant. Had these subjects been rated equally, the failures in anatomy would have been more numerous.

It is important to emphasize that the questions asked in anatomy are based on practical applied surgical anatomy. We have not asked detailed questions on origin and insertion of muscles but rather on their function. We expect the candidates to know the main vessels supplying the gastrointestinal tract, the relation of the structures in the gastrohepatic omentum, the lymphatic drainage of the stomach and rectum, the anatomy of the inguinal canal, the nerves injured in supracondylar fractures of the humerus and the embryological significance of the rotation of the gut in relation to the peritoneal fossae and the spread of peritoneal infection. The examiners have, as a rule, been surgeons who have taught anatomy and appreciate the relative significance of anatomical structures in the practice of surgery.

As a result of our experience in these examinations certain conclusions are obvious. First: Many of the candidates coming up for examination after five years of surgical training have either not had satisfactory instruction in gross anatomy or have forgotten what they knew. Secondly: In their earlier studies in anatomy they were not instructed in the relative importance of certain structures as compared to others. Thirdly: They have not had an opportunity in their graduate work to study regional and applied anatomy in relation to surgical procedures.

It may be said fairly that the medical student in his first year is not being trained to be a surgeon. With equal fairness it may be said that he is not given proper instruction as to the relative importance of some structures as compared to others. I would make one suggestion for the curriculum committees of our schools. Give to the third or fourth year student during the quarter or trimester of the surgical clerkship a course in regional and applied anatomy in which an experienced surgeon can point out the relative importance of anatomical structure and function, assisted by the surgical residents of the hospital or hospitals connected with the medical school.

For the past eight years, I have taken part in such a course and have found it of the greatest value to student and resident. We have assiduously avoided making this a course to teach surgical technique but have limited it to a review of gross anatomy of the several systems in which members of the several surgical specialties take part with their residents. The greatest value of such a course is for the resident surgeons. Unfortunately, the present war program, with depletion of our resident staff, has interfered with this plan, but it is one that should be kept in mind in planning for our curricula after the war.

DISCUSSION

DR. EDWIN P. LEHMAN (University of Virginia): My experience with the knowledge of anatomy shown by advanced students of surgery has not been of the extensive and concentrated variety that Dr. Whipple and his associates of the American Board of Surgery have had. However, anyone teaching surgery to third and fourth year students becomes aware at an earlier level in medical education of deficiencies in anatomical training. To encounter fourth year students with no conception of the surface anatomy of the knee joint or the functional loss entailed by division of the external peroneal nerve is discouraging.

As the result of repeated experiences of the sort, a course for fourth year students, corresponding to the course described by Dr. Whipple, was initiated at the University of Virginia School of Medicine in 1936.

The course has been given from the start by an actively practicing surgeon, a licentiate of the American Board of Surgery and a member of the Department of Surgery and Gynecology. Assisting him during the later years has been a young graduate, a member of the Department of Anatomy, who has had recent clinical experience on both the medical and surgical house staffs. The course is required of all fourth year students. At the start it consisted of 20 hours, largely of demonstrations on prepared specimens. It shortly became obvious that this did not furnish enough time and the course was therefore gradually extended until it now consists of 50 hours, divided into 10 hours of demonstration and 40 hours of regional dissection. Surgical operations have not been made a part of the dissecting work, but the approach to teaching has been definitely surgical, emphasizing the anatomical problems associated with common surgical diseases and the functional aspects of anatomy.

Since the complete development of this course the number of failures by graduates of the University of Virginia of the Virginia State Board Examinations in anatomy has dropped 80 per cent, from an average of 10.3 to an average of 2. There has been a corresponding increase of 3.4 per cent in the average grades obtained.

These figures are presented in a tentative manner only. It is recognized in the first place that the criterion furnished by the results of State Board Examinations does not represent a permanent knowledge of anatomy. In the second place, the data have not been statistically analyzed. With these reservations the results suggest a certain value from a review of anatomy after a clinical background has been established.

In conclusion, I should like to add to Dr. Whipple's comment on his own experience, a brief parallel from mine. I learned my anatomy under the old system at Harvard University, in which the dissecting room demonstrators were young practicing surgeons in Boston. The anatomical points of direct surgical reference which they offered to a confused beginner became a permanent ineradicable part of my mental equipment. Even the memory of the dissecting room when these illuminating references were made is as vivid now as it was in the fall of 1910. Perhaps there is something to be said for the continental method of medical teaching, in which clinical and pre-clinical subjects are approached simultaneously from the first day of medical teaching. We cannot afford to neglect the thirsty imagination of the eager young student of medicine, who responds at once to the thrilling problems of disease as related to or conditioned by anatomical structure, and to whom osteology and all that immediately follows seems far removed from his ultimate aim.

DR. J. STEWART RODMAN (American Board of Surgery): The Board has been very much disappointed to find that almost one-half of these well trained surgeons who have come before us have not been well trained in anatomy. We do not know why that should be, because the members of the Board are still old-fashioned enough to think anatomy is still the most important fundamental subject in the basic training of surgeons.

It has been rather surprising to us, examining in different medical centers, to find that anatomical material in some of the high centers of medical training in this country was very scarce, and that, therefore, practical work in anatomy must have been greatly curtailed, and that in those schools anatomy must be learned somewhat from an academic point of view. We do not believe that sort of anatomy sticks, as it cannot be taught properly without adequate material for teaching.

It is a little difficult to make news of the subject of anatomy in a war program but, after all, the war needs surgeons, and surgeons need anatomy more than any other one fundamental thing.

DR. C. W. M. POYNTER (University of Nebraska): I think we have to admit that as far as the anatomy departments are concerned they are experimental biology.

The thing that bothers me is that when anatomy has had to correlate itself with physiology—that has become more and more emphasized; when it has had to correlate itself through microscopic anatomy with pathology—that has steadily increased in importance in medical schools, we had supposed that the 430 hours of gross anatomy, that we gave in the beginning of the freshman year, would be carried on or emphasized, or perspective given to it by surgery.

Only two years ago, I think, at a meeting held in Chicago, it was the general consensus there that it was unnecessary for us to continue emphasis of gross anatomy, and that probably we could get along just as well without it. When the organization began, of preparation for the specialty boards, it was emphasized that as long as we now had a period of from three to five years in which perspective could be given to the basic sciences, the student, whether he was in surgery or medicine, would there pick up all of the important work that applied as far as he was concerned, and the anatomy department would be absolved from giving anything but a structural, basic course. What I am curious to know is what happened to these five years during which these men have been preparing for their examinations in connection with the specialty of surgery; that they have not taken up any of this perspective and the emphasis in connection with applied anatomy. I do not believe, as the curriculum stands at the present time, that the anatomy department, having 430 hours in the beginning of the freshman year, is necessarily entirely responsible for the delinquency of our student in the Surgery Board.

DR. JOSEPH C. HINSEY (Cornell University): Speaking as an anatomist, we appreciate very much the attention that has been called to this subject, because from time to time it has been suggested that the time for anatomy be cut down to the bare minimum. It has even been suggested that anatomy could be taught from charts, without dissection. Anatomists have been cut down in certain places so that only a preliminary dissection can be made.

I wonder if Dr. Whipple has canvassed anatomy departments over the country, and can give any relative percentage of where the teaching of gross anatomy is turned over to inexperienced and young instructors. I have not made that survey, but I would like to know whether or not the survey has been made.

The point has been made that the importance of certain structures should be pointed out to the first year student. That is certainly true, and is being done in a number of institutions. However, it is difficult for a student to correlate two things when he knows only one, and the correlations that are started in many anatomy departments should be followed through in the clinical instruction. In the arrangement of the curriculum, it would be much better if it were possible to teach the anatomy of the chest and the abdomen at the time the student studies physical diagnosis. That does not happen to be the case. It would be much better if he could do the dissection of the extremities at the time he is doing orthopedic surgery, but that is not the case. What we, as anatomists, would like to have would be for surgeons to point out the

anatomical relations and their importance, and review certain phases of surgical anatomy at the time the student does the different portions of surgery.

We are partially responsible, and we recognize it. At Cornell we have done several things. One thing is that we have a course such as has been suggested. It has been started recently. We have made it possible for students in the fourth year, who have so elected, to do review dissections. About one-third of the past two senior classes have done it. As a rule the student does dissection in the first year, and does not have an opportunity to do any more dissection until he come up before specialty boards for examination. Sometimes there is a lag of eight or ten years. There is something wrong about that sort of a situation, and these men should have an opportunity for review.

Through a period of years, the emphasis in surgery has been on the physiological approach, and of men who are taking these board examinations in surgery, I wonder how many have spent time back in an anatomical laboratory. Some young surgeons do well in the teaching of anatomy. Again, the problem is getting men who are available to do it.

I sympathize with the problem Dr. Whipple raised. There are things that can be done by the anatomists, but I believe it is a joint problem that must be shared by the surgeons as well. If the men on the resident staff will emphasize the anatomical importance of the various subjects under consideration and if we accept our part of the responsibility I believe a great deal will be accomplished by a joint approach, but I believe it should be a dual one.

DR. C. C. CARPENTER (Bowman Gray School of Medicine): In developing the Bowman Gray School of Medicine, which was an expansion of the two-year school at Wake Forest, we are attempting to re-evaluate the curriculum in every respect. We do not feel that the deficiencies in the teaching of anatomy should be placed at the feet of the anatomist particularly, but at the feet of the entire faculty. We believe anatomy should be taught throughout the curriculum; so we have started what may be considered an experiment, in that we offer the usual number of hours in gross anatomy, but we require that it be taught throughout the four years of the medical course.

The first-year student is given eight weeks of dissection, which is considered essentially a laboratory course. During the eight weeks of dissection, clinicians are required to give weekly clinics covering the anatomical features of the part under consideration in the anatomical laboratory. Each clinical department, in collaboration with the professor of anatomy, is required to teach gross anatomy as it pertains to that particular specialty. For illustration, while the students are studying pathology, the department of anatomy gives the anatomy of the circulatory system, anatomy of lymphatic drainage, et cetera. While studying gynecology and obstetrics, students are given the anatomy pertaining to that field. The same is done in surgery and internal medicine. At the end of the fourth year we propose to give the final examination on gross anatomy. We will let you know how we come out.

DR. B. I. BURNS (Louisiana State University): When the modification of the medical school curriculum began, the most noticeable change in it was reduction in the time given to the teaching of anatomy. The excuse for it was that some of the anatomy taught in the first year should be placed in the clinical years. The result, however, has been that the time for anatomy has been reduced in the first year but no time has been provided for a proper course in the third and fourth years of any curriculum that I know anything about.

At Louisiana State University we have integrated all the courses in anatomy into one course and we teach what we think is a thoroughly correlated course with emphasis on function. We also point out the practical considerations in pretty good

fashion, we think, but the fact remains that at the end of the first year we are pretty well satisfied if our students have merely learned how to study anatomy. The fault, as I see it, is simply that no one follows up that training. Whenever the question of correlating preclinical with clinical work is discussed, the responsibility for it in any discussion I have heard has always been put on the preclinical man. It is really the responsibility of the clinical teacher. Some provision has to be made to follow up, to build on the foundation that is laid in the first year, and a 36-hour didactic course in the junior or senior year will not do it.

We have attempted to give a course in the junior year, and have given one for a short time, but we ran into the problem of obtaining material. There was a time when, in the South particularly, dissecting material was abundant. This is no longer true. We are fortunate most years to have one cadaver for each group of four freshmen throughout the year and we can seldom have that and assign material to upper classes.

I believe it is almost completely a waste of time to try to teach anatomy in a purely didactic course. It should be taught to the upper classes. It should be taught to residents. We have offered our clinical departments an opportunity to send their residents to the anatomy laboratory to assist; at least to browse with the freshmen. I am sure that opportunity is available almost everywhere, but I have heard of very few clinical departments taking advantage of it.

While it is desirable that teaching in all preclinical subjects be provided in the upper classes and during the residency, the solution to the problem is not that simple. Until clinical instructors manage to present their subjects in such manner as to consistently impress on the student that the teacher possesses a sound knowledge of the preclinical field, the great majority of students will muddle along without it.

I am not willing to concede that the anatomists need to be defended on this proposition, even from the standpoint of the use of inexperienced young instructors. If administrators of medical schools will loosen up and give the anatomy departments a decent budget, they will get and retain some good instructors.

Dr. Whipple's points are well taken and it is good to have the situation aired. Perhaps sometime we may get around to the proposition of properly integrating and correlating the entire medical curriculum, including the premedical. It is my opinion that we are going to continue kidding ourselves for a good long time before a proper revision can be agreed upon.

DR. ALLEN O. WHIPPLE: I realized I was dealing with a controversial subject when I read this paper, and I am afraid I did not emphasize as I should have—which was brought out by two or three of the speakers—that this is a joint responsibility. I don't think there is any question about that.

My suggestion, in speaking of a course in which the medical students, after they have become familiar with some of the clinical problems, should have regional anatomy in which there were surgeons and physicians and residents of the various specialty departments, was perhaps to bridge this gap. I am astonished to see the show of hands that indicate such courses are being given. I would be interested in knowing how recently such courses have been established. If they have recently been established, I am sure the results will show in the examinations of the various specialty boards.

Again, I wish to emphasize, that I agree entirely that this is a joint responsibility. I know that in the course of a surgeon's work with his residents there is a very real opportunity there of pointing out the important anatomical relations and the relative importance of anatomical structure in relation to function. I think many surgeons—I know I have made the mistake myself—in the course of a morning's work neglect that opportunity, and it is a real opportunity that can be taken advantage of and which the residents appreciate.

THE NAVY V-12 COLLEGE TRAINING PROGRAM

The courses in this program have been molded so as to conform rather closely to those which are standard in the colleges and universities of the nation. Departures have been made where the interests of the Navy demanded the inclusion of new matter or the exclusion of subject matter not closely related to the program. Institutions will be expected to maintain their normal size classes.

The term starting dates will be on or about July 1, November 1, 1943, and March 1, 1944. Sixteen weeks will be the term length. Premedics will take five terms.

A contact hour is defined as 50 minutes of instruction in lecture, recitation or laboratory—as it applies to premedics. Recitation and lecture periods will be of 50 minutes duration. Laboratory periods will be of three hours duration, except for physics where one hour of the period will be used for lecture. It is expected that the average student will devote from 52 to 58 hours per week to classes, laboratory work and preparation. Each institution will determine whether or not credit toward a degree shall be given for the completion of courses in the various curricula.

Students in medicine who have completed the premedical courses will follow the approved programs of the medical schools which they enter. Medical students in the V-12 program will be classed as apprentice seamen, but will be uniformed as reserve midshipmen.

Physical training is compulsory for all enlisted students. They will be permitted to take part in all college athletics and other activities of the campus on the same basis as civilian students insofar as it does not interfere with their prescribed hours or courses of study. V-12 students will normally be in classes by themselves. However, civilian students, if the institution so desires, may be placed in the same classes with V-12 students. Indulgence in extra-curricular activities will be on the same basis as voluntary physical training. They may also join already existing organizations and fraternities on the campus.

CURRICULUM FOR PREMEDICAL STUDENTS

FIRST YEAR	Periods per Week	
	First Term	Second Term
Chemistry I, II (C1, 2)	4 (6)	4 (8)
Physics I, II (PH 1, 2)	4 (6)	4 (6)
Mathematical Analysis I or III II or IV (M 1 or 3, 2 or 4)	5 (5)	5 (5)
Modern Foreign Language I-II (L1, 2)	3 (3)	3 (3)
Naval Organization I, II (N 1, 2)	1 (1)	1 (1)
	<hr/>	<hr/>
	17 (21)	17 (23)
Physical Training	2 (6)	2 (6)
	<hr/>	<hr/>
	19 (27)	19 (29)

(Mathematical analysis I and II—combination course in mathematical analysis for students entering with 2 or less units of mathematics. Mathematical analysis III and IV algebra, trigonometry and analytical geometry; or analytical geometry and calculus for students entering with $2\frac{1}{2}$ or more units of mathematics.)

Modern Foreign Languages; Reading knowledge of French, German or Spanish.

SECOND YEAR	Periods per Week	
	First Term	Second Term
Chemistry III—Qualitative Analysis (C3)	4 (8)	
Organic chemistry I (C4)		4 (8)
Biology I, II (B1, 2)	4 (8)	4 (8)
Modern Foreign Language III-IV (L3-4)	3 (3)	3 (3)
English I-II (E1-2)	3 (3)	3 (3)
Historic Background of Present War I-II (H1-2)	2 (2)	2 (2)
Psychology I—General (PS 1)	2 (2)	2 (2)
	<hr/>	<hr/>
	18 (26)	18 (26)
Physical Training	2 (6)	2 (6)
	<hr/>	<hr/>
	20 (32)	20 (32)

THIRD YEAR

Biology III (Embryology) or Biology IV (Comparative Anatomy) (B 3 or 4)	5	(9)
Organic Chemistry II (C6)	4	(8)
Modern Foreign Language V or VI (L5 or 6)	3	(3)
Psychology II—Abnormal (PS2)	3	(3)
Elective	3	(3)
	18	(26)
	2	(6)
	20	(32)

The booklet issued by the Navy sets forth in detail the course prescriptions.

ARMY SPECIALIZED TRAINING PROGRAM

Proposed Preprofessional Curriculum
(Premedical, Predental, Preveterinary)

	Contact Hours per week (lecture and laboratory)					Total	Credit Hours	
	I	II	III	IV	V		QTR	SEM
Mathematics	6	5	—	—	—	11	11	8
Physics	7(4/3)	7(4/3)	7(4/3)	—	—	21	15	11
Chemistry	3	6(2/4)	9(3/6)	9(3/6)	9(3/6)	36	25	18
Biology	—	—	7(3/4)	7(3/4)	7(3/4)	21	15	11
English	3	2	2	2	2	11	11	8
History	3	2	2	—	—	7	7	5
Geography	2	2	2	—	—	6	6	4
Psychology	—	—	—	4	4	8	8	6
Selected Courses	—	—	—	6	6	12	12	8
Total Contact Hours	24	24	29	28	28	133	110	79
Military Instruction	5	5	5	5	5			
Physical Training	6	6	6	6	6			
Supervised Study	24	24	20	20	20			

RESUME:

Mathematics: I & II—8 s.h.

Physics: I, II, III—11 s.h.

Chemistry: Inorganic I, II, III—10 s.h.

Organic—IV & V—8 s.h.

Biology: general biology (not to include botany) III & IV—7 s.h.

comparative anatomy or embryology: V—4 s.h.

English: I, II, III, IV & V 8 s.h.

History: I, II & III

Geography: I, II, & III

Psychology: General psychology IV & V—6 s.h.

Selected courses: IV & V—8 s.h. to be selected by the institution based on trainees' interest and special aptitude and on the unusual facilities of the institution from among the following:

advanced study of a modern foreign language; economics and public administration (recommended); quantitative analysis; physical chemistry.

**OPENING DATES OF 1943 AND 1944 SESSIONS OF THE
MEDICAL COLLEGES OF THE UNITED STATES**

(Figure after name indicates day of month)

1943

FIRST CLASS	DATE	SECOND CLASS	FIRST CLASS	DATE	SECOND CLASS
JANUARY			New York		
Tennessee	1	March 22, July 5,	Med. Coll.	29	
(Quarterly admissions)		September 23			
Indiana	7	September 6	APRIL		
FEBRUARY			Duke	1	
Mississippi	1	September 27	Louisville	1	
California	15	October 11	Temple	1	
Dartmouth	Not Decided	November 1	Cornell	5	
MARCH			Hahnemann	5	
Johns Hopkins	1	December 1	Med. Coll.		
Iowa	1		of Virginia	5	
St. Louis	1	November 29	New York Univ.	5	
Geo. Washington	1	November 22	Pennsylvania	5	
Marquette	1	October 25	Pittsburgh	5	
Western Reserve	1	November 8	Wayne	5	
Harvard	8		Yale	5	
South Dakota	8	December 6	Georgia	7	
Alabama	11	December 6	Tufts	7	
Louisiana	11		Maryland	8	
Creighton	15		Jefferson	12	
Georgetown	15		Vermont	12	
Texas	15	November 1	Loyola	19	
Columbia	22		MAY		
Cincinnati	22	December 13	Oklahoma	10	
Bowman Gray	22		Kansas	24	
Missouri	22	December 27	JUNE		
North Carolina	22		Wisconsin	7	
Utah	22		Howard	12	
West Virginia	22	December 27	So. California	14	
Emory	23		Meharry	14	
Nebraska	26	December 31	Baylor	21	
Northwestern	26	December 29	Illinois	28	
Virginia	26	December 28	No. Dakota	Not Decided	
Albany	29		JULY		
Chicago	29		Coll. Med.		
Colorado	29		Evangelists	1	
Long Island	29		Tulane	1	
Minnesota	29		Syracuse	5	
Oregon	29		Buffalo	6	
Rochester	29		Arkansas	Not Decided	
Washington	29		SEPTEMBER		
Stanford	27		Woman's Med.		
Ohio	30		Coll. Pa.	1	
Boston	31	December 31	OCTOBER		
Vanderbilt	29		Michigan	6	

1944

FIRST CLASS	DATE	SECOND CLASS
JANUARY		
North Carolina	1	September 1
Tennessee	1	March 20, July 5, September 23
Med. Coll. Virginia	2	September 27
Albany	3	October 2
Bowman Gray	3	September 27
Chicago	3	October 2
Colorado	3	September 27
Columbia	3	October 2
Emory	3	September 22
Georgetown	3	October 2
Georgia	3	Not Decided
Hahnemann	3	September 25
Harvard	3	Sept. or Oct.
Iowa	3	Not Decided
Long Island	3	October 9
Oregon	3	October 1
Pennsylvania	3	October 1
Pittsburgh	3	October 2
Rochester	3	September 25
South Carolina	3	September 3
Temple	3	October 2
Vanderbilt	3	September 25
Vermont	3	October 4
Yale	3	October 5
Creighton	4	September 25
Ohio	4	October 3
Cornell	5	Not Decided (October)
Louisville	5	September 20
Oklahoma	5	September 4
Tufts	5	Not Decided (October)
Jefferson	10	September 1
Wayne	10	October 5
Maryland	13	October 19
Kansas	17	September 17
Duke	27	October 5
Louisiana	Not Decided	Not Decided (October)
Minnesota	Not Decided	Not Decided (September)
New York Univ.	Not Decided	Not Decided (October)

FIRST CLASS	DATE	SECOND CLASS
Stanford	Not Decided	Not Decided (October)
Utah	Not Decided	Not Decided (September)
Wash- ington	Not Decided	Not Decided (October)
New York Med. Coll.	3	September 25
FEBRUARY		
Loyola	7	November 6
So. California	7	Not Decided (October)
Wisconsin	8	October 2
MARCH		
Louisiana	1	
Tulane	1	
Meharry	20	
Tennessee	20	July 5, Sept. 23.
Howard	25	
Illinois	27	

APRIL		
Coll. Med.		
Evangelists	1	
Baylor	3	
Buffalo	3	
Arkansas	Not Decided	
Syracuse	3	

MAY		
Indiana	Not Decided	

JUNE		
Mississippi	1	
California	12	
Meharry	20	
No. Dakota	Not Decided	

JULY		
Texas	1	
Tennessee	5	September 23
Western Reserve	17	
Marquette	5	

FIRST CLASS	DATE	SECOND CLASS
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AUGUST

St. Louis	28	
Dartmouth	Not Decided	
George Wash- ington	Not Decided	

SEPTEMBER

Hopkins	1	
Woman's Med. Coll. Pa.	1	
Cincinnati	5	
Alabama	11	
Virginia	22	

FIRST CLASS	DATE	SECOND CLASS
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Northwestern	25	
West Virginia	27	
Nebraska	29	
Boston	31	
Missouri	Not Decided	
So. Dakota	Not Decided	

OCTOBER

Michigan	Not Decided	
New York Univ.	Not Decided	

ADMISSION DATES OF COLLEGES HOLDING A SECOND SESSION IN 1943**MARCH**

Tennessee	22
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JULY

Tennessee	5
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SEPTEMBER

Indiana	6
Mississippi	27
Tennessee	23

OCTOBER

California	11
Marquette	25

NOVEMBER

So. Dakota	Not Decided
Dartmouth	Not Decided
Texas	1
Western Reserve	8
Geo. Washington	22
St. Louis	29

DECEMBER

Hopkins	1
Alabama	6
South Dakota	6
Cincinnati	13
Missouri	27
Northwestern	27
West Virginia	27
Virginia	28
Boston	31
Nebraska	31

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Army and Navy Training Programs

Elsewhere in this issue are published the programs for specialized training set up by the Army and the Navy. They differ in length. The Army program provides for five twelve weeks terms. The Navy program calls for five 16 weeks programs. These programs will be effective in the colleges with which either service makes a contract.

The prescriptions for courses of study have been made known by the Army and the Navy and may be obtained by writing to these services and requesting a copy. The administration of these plans by the Army and the Navy have not yet been set forth officially. However, the students who attend college as members of these program groups will be under the direction and control of the respective services as soldiers and as seamen. Doubtless officers of both services will be in residence at each college operating under contract with the Army and the Navy or either service.

It is also to be anticipated that the Army and the Navy will have a voice, if not the sole voice, in the selection of the students working under these programs and also play a part in the awarding of credits for the successful completion of prescribed courses. The Navy has announced in its published program that it will give a qualifying examination of its own to all students near the end of the second term. The result will determine whether or not the student will be permitted to go on with the next year or term or, if he fails to pass the examination, be inducted into active service, thus ending his college career, for the time being, at least.

These two programs show evidence of much careful thought and planning

for which the collaborators are deserving of the highest commendation. It is a pity, however, that they are dissimilar, at least in length. This dissimilarity may make difficulties of administration by the colleges and may demand two separate curricula. Of course, if only one of the services is represented in a college, there will not be any difficulty in carrying out the program. On the other hand, these programs doubtless will bring about a revamping of courses and bring them back to basic principles from which many colleges have long since departed. They may even bring about a complete revolution in course programs and in teaching—which is not undesirable.

♦ ♦

Army Specialized Training Program

Elsewhere in this issue is set forth the proposed preprofessional curriculum adopted by the Army. It differs slightly from the program published in the March, 1943, issue of the Journal of the Association of American Medical Colleges. Physics has been increased and psychology is listed as required rather than as an elective. The total semester hours in each subject listed are as follows: Mathematics, 8; physics, 11; chemistry, 18; biology, 11; English, 8; history, 5; geography, 4; psychology, 6; selected courses, 8. The total "contact" hours for each subject are: 11, 21, 36, 21, 11, 7, 6, 8, 12, respectively. Each student will also receive in each 12 weeks period, 5 hours weekly of military instruction and 6 hours weekly of physical training. The total number of contact hours listed in this program are 133 or 79 semester hours (110 quarter hours).

The selected courses will be chosen by the institution based on trainee's interest and special aptitude and on the unusual facilities of the institution from among the following: advanced study of a modern foreign language, economics and public administration (recommended), quantitative analysis and physical chemistry. The entire program will cover five 12 weeks periods, the first two periods being devoted to general courses, the last three to special courses included more specifically in so-called premedical programs.

* *

The Accelerated Program

A survey of the opening dates of the 1943 and 1944 sessions of the medical schools of the United States shows that there is a considerable staggering from January to October inclusive for 1943. The months of opening and the number of schools for each month are as follows: January, 2; February, 4; March, 36; April, 18; May, 2; June, 8; July, 6; September, 1; October, 1. Twenty schools will have a second session in 1943, as follows: March, 1 (quarter plan); July, 1 (quarter plan); September, 3 (one, quarter plan); October, 2; November, 6; December, 9.

In 1944, the dates of opening of sessions are as follows: January, 41; February, 3; March, 1 (quarter plan); April, 5; May, 1; June, 4; July, 4 (one, quarter plan); August, 4; September, 10 (one, quarter plan); October, 2. Forty-five schools will open a second session, as follows: March, 1 (quarter plan); July, 1 (quarter plan); September, 19 (one, quarter plan); October, 24.

This information is based on the reports made by the 78 medical colleges who were asked to give this information. The geographic distribution of these colleges is rather wide so that it cannot be said that it will be possible for every premedical student to enter a medical school at the conclusion of his college work or a school located in the region or area in which he resides. Only one medical school admits students every quarter, and inasmuch as its student

body is rather small, only comparatively few students will have an opportunity to matriculate here in any one of the quarters.

For 1943, March offered the greatest opportunity for matriculation; in 1944, January will be the time. Slightly more than one-half (40) the number of schools will open their first class in that month. How this program fits into the time of completion of premedical work remains to be seen. Definite information on that point is not at hand at this time.

* *

Tropical Medicine Fellows

The John and Mary R. Markle Foundation has made it possible, by a grant, to send a second group of fellows from medical schools for intensive training in tropical medicine to the Army Medical School and the Tulane University of Louisiana.

Five fellows have been assigned to Tulane from the medical schools of Wayne University, St. Louis University, University of North Carolina, University of South Dakota and the Medical College of Virginia.

Seven fellows have been assigned to the Army Medical School from the medical schools of Wayne University, State University of Iowa, Washington University, University of California, Howard University, St. Louis University, and University of North Carolina. A fellow assigned from the Medical College of Virginia was unable to go because of illness.

The Committee on the Teaching of Tropical Medicine of the Association of American Medical Colleges, is now considering, with the cooperation of the Markle Foundation, making it possible to gain practical experience with tropical diseases in one or more states of Central America. The United Fruit Company has consented to make available the facilities of its hospitals in these states. The program for this work has not been determined definitely but it gives promise of exceptional opportunities to study tropical diseases under the best possible conditions.

The Virginias and Medical Education

It now seems proper to comment upon the effective efforts of West Virginia to further solve its problems of medical education and the relation of this effort to the State of Virginia.

Based upon a comprehensive report of a committee of the West Virginia State Medical Association, of which the dean of West Virginia University medical school was a member, decision was reached that this is not the time to develop a four-year medical school in West Virginia; that, however, the program of the present two-year medical school at Morgantown devoted to the medical sciences should be further strengthened wherever practicable and arrangements made with some four-year medical school to receive West Virginia graduates in the medical sciences on a voluntary basis for the completion of their work, this arrangement to be subsidized by West Virginia University.

This recommendation was duly accepted by the authorities of West Virginia University, by the Governor of the State, and by the profession generally. An enabling act to make legal this proposal has been unanimously adopted by the West Virginia legislature which has also provided funds appropriate to the consummation of the project.

Meanwhile, the authorities of West Virginia University, backed by representatives of the State Medical Association, have been negotiating with the Medical College of Virginia with a view to working out arrangements for the transfer of some fifteen to twenty medical students annually to Richmond for the last two years of their instruction. This would add a total of from thirty to forty students per year after the first year to the third and fourth-year classes of the school of medicine at the Medical College of Virginia, whose total matriculation would still be less than a decade or

more ago. The subsidy paid by West Virginia University and student fees would add something like \$40,000 or \$50,000 a year for instructional purposes in the clinical years of the medical course. Further, this proposal would not reduce the number of students from Virginia which can be accepted by the school of medicine of the college.

To summarize, some of the advantages of cooperation between the two Virginias are: medical education in West Virginia can go forward in an approved manner and at reasonable cost; the co-operative arrangement will enlarge the constituency of the Medical College of Virginia by adding West Virginia and will make Richmond increasingly a medical centre for that State, which already has more physicians who are graduates of the Medical College of Virginia than of any other institution; the plan will call for no capital outlays and will not reduce the number of students which either institution now accepts; the increased revenues of each institution will permit strengthening teaching staffs; diplomas of West Virginia students will set forth the procedure followed in their education and will be attested to by certain individuals at each institution; the closest possible cooperation between the two schools will be developed in relation to curriculum organization, in promotion of students at Morgantown to Richmond and their subsequent graduation, and in the general welfare of each institution. If successful, a pattern for joint action by states will be demonstrated.

This program is tentatively scheduled to go into operation January, 1944. A formal contract between the participating medical schools remains to be approved and executed. Many of the details involved have already been carefully considered at length.—*Virginia M. Monthly*, 70:173 (Apr.) 1943.

College News

University of Pennsylvania School of Medicine

The 35th annual meeting of the Undergraduate Medical Association of the University of Pennsylvania was held March 9th. The program featured four papers read by medical students. They were discussed by members of the faculty. Dr. A. N. Richards opened the program. Dr. M. C. Winternitz, professor of pathology, Yale Medical School, spoke on "A Point of View of Medicine." Dr. William Pepper, dean of the School of Medicine, presented the prizes.

* *

Stanford University School of Medicine

The sixty-first course of popular medical lectures was given April 2, 16 and 30 and will be continued on May 14th. The lecturers and their subjects: "Food Rationing and Civilian Health," Dr. J. C. Geiger; "Tropical Diseases Menace United States at War," Dr. Alfred C. Reed; "Health Service to the Public During the Emergency," Dr. Loren R. Chandler; "Protection of Health and Fitness in Flying Personnel," Dr. John K. Lewis.

* *

University of Vermont College of Medicine

A blood plasma bank was formally opened March 19 in space provided by the College. The bank is a cooperative one in which the state contributed \$3,000 of the \$30,000 which was collected in a statewide campaign. Dr. Wendell E. James, associate professor of bacteriology and clinical pathology at the school, is director of the bank and processing laboratory. Fourteen hospitals in the state are cooperating and the bleeding is to be done at these hospitals, the donors registering with the local Red Cross agencies. The blood is to be shipped to the laboratory for processing, and each hospital is allocated 1 unit for each bed

until the total bank reaches 2,000 units. Plasma will be available not only for civil defense but for civilian needs also, and if, as is expected, there is a surplus above this point, it will be donated to the military service.

* *

University of Oklahoma School of Medicine

Dr. Francis A. DeMand, associate in obstetrics, died February 11th after a short illness. Dr. Joseph B. Goldsmith, associate professor of histology and embryology, has entered the Army Medical Corps and was granted leave of absence. Dr. Ruth A. McKinley has been appointed instructor in clinical pathology to fill the vacancy created by the resignation of Dr. Erik Eselius.

* *

Indiana University School of Medicine

All research is being confined to the field of military medicine. Sixty-two members of the faculty entered military service in 1942. Under the accelerated program, students are required to attend at least 95 per cent of all regularly scheduled exercises. The curriculum has been revised to introduce courses having a direct bearing on military medicine, such as tropical medicine, parasites, treatment of wounds, shock, burns and the effects of poisonous gases.

* *

University of Wisconsin Medical School

The Charles Mickle Fellowship for 1942 at the University of Toronto has been awarded to Dr. Arthur L. Tatum, since 1928 professor of pharmacology. The award went to Dr. Tatum as "the member of the medical profession who has done most during the preceding ten years to advance sound knowledge of a practical kind in medical art or science."

*Bowman Gray
School of Medicine*

At a meeting of the Board of Trustees of the North Carolina Baptist Hospital held February 18, it was agreed to expand the hospital at the earliest possible moment after freeing of materials. A committee from the Board of Trustees consisting of Mr. I. E. Carlyle, Chairman, Mr. E. L. Davis, and Mr. T. W. Blackwell, and a committee from the staff of the Bowman Gray School of Medicine and hospital consisting of Dr. Tinsley R. Harrison, Chairman, Dr. Frank R. Lock, Dr. L. J. Butler, Dr. H. H. Bradshaw, and Mr. C. T. Hardy to plan the expansion program was appointed. The committee met and agreed to plan for an expansion that when completed would give the hospital one thousand beds. The firm of Northup and O'Brien, architects, of Winston-Salem, N. C., is working with the committee to make sketches. Approval has also been given by the Board of Trustees for the erection of a new nurses' home to house 300 nurses and teaching and recreational facilities for student nurses.

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*New York University
College of Medicine*

Dr. Currier McEwen, dean, has been commissioned Lt. Col., U. S. Army, M. C., and is waiting for orders. He will serve as Executive Officer of the Bellevue Hospital Affiliated Unit, the First General Hospital, now in training at Fort Meade. During his absence from the college, Dr. Donal Sheehan, professor of anatomy, will be acting dean and Dr. Clarence E. de la Chapelle, professor of clinical medicine, will be assistant dean in place of Dr. John E. Mulholland, on leave since October, now in charge of the Surgical Unit of the Bellevue Unit.

The annual John H. Wyckoff Lectures at the New York University College of Medicine were delivered by James S. Simmons, M.D., Ph.D., Sc.D., Brigadier General, Medical Corps, United States Army, Director, Preventive Medicine Division on April 15 and

16, 1943. The topics of these lectures were: "The Preventive Medicine Program of the United States Army" and "The Present State of the Army's Health."

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Medical College of Virginia

The college closed the one hundred fifth session March 20. The Commencement address was made by Honorable Colgate W. Darden, Jr., Governor of Virginia. The graduating class in medicine numbered 68. The fourteenth annual Stuart McGuire lectures and postgraduate clinics were held February 25 and 26. Dr. Philip D. Wilson, clinical professor of orthopedic surgery, Columbia University College of Physicians and Surgeons, gave the two McGuire lectures, the first on "The Treatment of War Injuries" and the second on "Amputations in War Time." Dr. Emil J. C. Hildenbrand, associate professor of clinical surgery, Georgetown University School of Medicine, took part in the symposium on low back pain; others participating in the symposium were members of the college faculty. Gifts for the current session, totaling \$118,272.27, were reported.

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*Long Island College
of Medicine*

The Adam M. Miller memorial lecture was delivered April 13th by Dr. Carl J. Wiggers, professor of physiology, Western Reserve University. His subject was "Recent Experimental Approaches to the Shock Problem."

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*University of Utah
School of Medicine*

Dr. Philip B. Price, who had been professor of surgery at the Cheeloo University School of Medicine, Shantung, China, until hostilities started, has been named head of the newly created department of surgery. Recently Dr. Price has been associate in surgery at the Johns Hopkins University School of Medicine, Baltimore.

*Vanderbilt University
School of Medicine*

Dr. Ernest W. Goodpasture was made Associate Dean of the School of Medicine by the Board of Trust of Vanderbilt University, effective February 1, 1943.

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*University of Illinois
College of Medicine*

Dr. David J. Davis, associated with the college for twenty-nine years, will retire September 1 as professor and head of the department of pathology, bacteriology and public health and dean of the medical school. His successor has not yet been named. Dr. Davis will reach the university's compulsory retirement age of 68 in August. He became professor of pathology in 1914 and dean in 1925. Dr. Wm. F. Peterson, professor of pathology, resigned.

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*Queen's University
Faculty of Medicine*

Graduates of the school have donated old medical books to form the nucleus of a medical history library as a memorial to Dr. Thomas Gibson, who at the time of his death was professor of medical history in the university.

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*McGill University
Faculty of Medicine*

Dr. A. Grant Fleming, Strathcona Professor of Public Health and Preventive Medicine, former dean of the faculty, died recently, the victim of an inoperable tumor of the brain. At the time of his death he was on leave of absence having been appointed to the headquarters staff of the Royal Canadian Army Medical Corps to be in charge of preventive medicine for the Army.

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*University of Mississippi
School of Medicine*

A gift of \$2,500 for the establishment of the G. D. Shands Memorial loan fund for students has been received from Paul

Hall Saunders, Ph.D., and his wife of New Orleans and New York, in memory of the late Governor Garvin D. Shands, Mrs. Saunders' father and for many years dean of the law school. Students who complete the two year course and who need financial aid to finish their studies at other medical schools may request aid from this fund.

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*Tufts College
Medical School*

The fiftieth anniversary of the founding of the school will be celebrated in September with fitting ceremonies appropriate to the wartime exigencies.

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Meharry Medical College

The State Board of Education of Tennessee and Meharry Medical College have entered into an agreement whereby Negro students classified as residents of Tennessee will be granted facilities for the study of medicine, dentistry and nursing at Meharry Medical College equivalent to the opportunities offered to white students at the University of Tennessee. Residents of Tennessee who meet the proper qualifications will be charged the same tuition in medicine, dentistry and nursing at Meharry Medical College as is charged to students in these professional fields at the University of Tennessee. The State Board of Education will then pay the difference between the tuition paid to the college by the student and the actual cost of training the student in Meharry Medical College in exactly the same way as it does at the University of Tennessee.

Meharry has been listed as one of the institutions to be inspected by the Army for possible contracts to train physicians and dentists in the Army Specialized Training Division.

Miss Emma L. White, registrar, was elected a member of the Executive Committee of the National Association of Collegiate Deans and Registrars in Negro Schools at the annual meeting of the Association held in March.

The American Registry of X-Ray

Technicians has approved the course for X-ray technicians offered by the department of Radiology, Dr. H. S. Shoulders, director.

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*Ohio State University
College of Medicine*

A grant of \$4,500 has been received by the Department of Bacteriology, from the Rockefeller Foundation to finance a study of influenza.

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*Wayne University
College of Medicine*

Three gifts for research have been received. One grant of \$1,800 was received from the Ciba Pharmaceutical Products Company for the continuation of Dr. Warren O. Nelson's study on the metabolism of estrogens and another of \$2,500 from the same source for vasoconstrictor research under the direction of Dr. Fredrick Yonkman. The Nutrition Foundation, Inc., renewed a grant of \$3,600 to be utilized by Dr. A. H. Smith in furthering his soy bean study, begun last year.

Concerned with "bends," "the effects of linear acceleration and deceleration," "altitude sickness" and "aero-embolism," a course in altitude physiology is being offered under the direction of Drs. Hans Haterius, Samuel R. Tipton, Arnold Lehman and Kenneth E. Corrigan. The course will attempt to explain the reactions of the human mechanism to flight and will discuss the physiological problems which confront the flight surgeon.

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*University of Texas
School of Medicine*

The William Buchanan Foundation of Texarkana, under the direction of Dr. Stanley Seeger, Chairman of the A. M. A. Council on Industrial Hygiene, has made available to the University of Texas School of Medicine a considerable sum for the inauguration of a Child Health Program. Funds are provided for an initial operation period

of five years. The proposed Child Health Program is to be established in connection with the Department of Pediatrics and the Children's Hospital of the University of Texas School of Medicine. It is felt that public confidence in physicians with respect to child health is a necessary basis for the development of the program. Special emphasis will be placed on current war time problems of adolescence, not only with respect to preventable diseases, but also with regard to mental outlook. Provisions are made in the program for postgraduate instruction for physicians through the state, for special educational services to the public, and for mobile demonstration units to be used in rural areas.

Frank Stead, formerly of the Los Angeles Department of Health, has been appointed assistant professor of preventive medicine and public health. He will have charge of research and instruction in sanitary engineering.

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*University of Nebraska
College of Medicine*

Dr. John Hewitt Judd has been promoted to the chairmanship of the department of ophthalmology.

Promotions: Dr. Harold Gifford, Jr., to associate professor of ophthalmology; Dr. David P. Findley, to assistant professor of obstetrics and gynecology; Dr. Harley F. Anderson, to assistant professor of obstetrics; Dr. Robert J. Stearns, to associate professor of gynecology; Dr. Charles P. Baker, to assistant professor of pathology and bacteriology; Dr. Herman F. Johnson, to associate professor of orthopedic surgery and surgery, in charge of the division of Fractures.

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*Jefferson Medical College
University of Pennsylvania
School of Medicine*

The residue of the estate of Major Henry Reed Hatfield, valued at \$1,000,000, has been bequeathed, after the payment of \$226,000 in specific bequests to charities, to these two medical colleges.

General News

Medical Replacement Training Center

Camp Barkeley, Texas, March 27.

That the medical units have done a better job than any other department of the army under fire is the estimate of Frank Hewlett, youthful veteran war correspondent of United Press, who has seen action since the first day of the war in Manila, through Bataan, Corregidor and the New Guinea campaign.

"During the Buna campaign the hospitals were often bombed and portable hospitals were often only a few hundred yards from the front lines," Hewlett wrote Cpl. Jack O'Meara, of the Medical Replacement Training Center public relations staff here, from Australia where he is now convalescing from malaria contracted in the New Guinea jungles. "Doctors and medical soldiers often worked the clock around, and thanks to their efforts, coupled with blood plasma and the sulfa drugs, many lives and limbs were saved.

That medical personnel takes the same risks of combat troops was confirmed by Hewlett, who wrote that when a Japanese sniper got in a tree near a portable hospital "medics were hiding behind cots as they fired away and finally brought down Mr. Moto."

As an indication of make-shift conditions confronting the medical men of the army, Hewlett's letter continued, "with patients on stretchers in the open, doctors often performed tough operations with their instruments sterilized by a pot of water boiling over a wood fire.

"I worked up a yarn about a doctor who performed an amputation and the soldier failed to snap out of it after getting a generous amount of blood plasma, so the doctor, after looking at the lad's dog tags and discovering the soldier had the same blood type as his own, gave him a direct transfusion with his own blood and saved the kid's life."

Although under fire almost continuously since the Japanese bombed the open city of Manila, Hewlett escaped bullets, shells and bombs during the Bataan campaign, on Corregidor and on three trips to the New Guinea front only to become a victim of disease. First it was tropical ulcers with complications and then malaria.

Of his personal experience with army hospitals, doctors and nurses, he commented: "This is the first time I have ever been in a hospital, but if all are like this one, I have been missing something good. The food is wonderful and the nurses all look like angels in their white uniforms. The doctors who have treated me were both big shots in civilian life and more than know their stuff."

Hewlett was a newspaperman in California, Hawaii and at Tokyo before joining the United Press at Manila, and for his eye witness accounts obtained under hazardous conditions at Bataan and Corregidor, he was selected as one of the outstanding war correspondents to receive a trophy for his performance last year.

♦ ♦

Goldwater Fund for Fellowship in Hospital Administration

Under the will of the late Dr. Sigismund S. Goldwater a sum of money was left to Mount Sinai Hospital which, together with gifts from Mrs. Goldwater and friends of Dr. Goldwater, will provide an income of \$1,000 annually to establish a fellowship in hospital administration and will be known as the Dr. S. S. Goldwater Memorial Fund. Recipients will receive the stipend of \$1,000 during the year of appointment and be provided with residence in the hospital if an unmarried person. It will be made available to serious students and workers in hospital administration and should prove of most benefit to some one already in the field in a junior and

even senior position. Previous hospital background and experience would provide an important foundation for the fellowship, which should prove especially useful to junior hospital administrators with a present hospital connection, who can secure a year's leave of absence if selected and who can return to their positions. The fellow's daily activities will be fitted to his own needs for hospital training and to his own capacities. Applications are now being accepted, since funds for the stipend are now available, the selection to be made by the board of trustees of the hospital. The benefits of the fellowship will not be limited to Mount Sinai Hospital.

♦ ♦

American Hospital Association

Mr. George P. Bugbee, superintendent, City Hospital, Cleveland, has been appointed executive secretary, to succeed Dr. Bert W. Caldwell, who resigned.

♦ ♦

Biggs Memorial Lecture

Lieut. Col. Paul F. Russell, Army of the United States, chief of the Tropical Disease and Malaria Control Section, Division of Preventive Medicine, Office of the Surgeon General, Washington, D. C., will deliver the annual Hermann M. Biggs Memorial Lecture on April 1 at the New York Academy of Medicine. His subject will be "Malaria and Its Influence on World Health."

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Institute of Medical Research at Toledo, Ohio

The Institute of Medical Research at the Toledo Hospital was dedicated March 27. The institute is housed in a new two story building made possible by an endowment from the late Frank Collins of the National Supply Company, Toledo. The staff includes a biochemist, nutritionist, bacteriologist,

pathologist and biophotographer under the direction of Dr. Bernhard Steinberg, Toledo. The staff will be augmented by a physiologist and pharmacologist. Provision has been made to accept fellows in medical and dental research. The institute will not be devoted to the study of a single disease but will maintain interest in disease in general, depending on the availability of the personnel. Dr. Cyrus C. Sturgis, professor of internal medicine and director of the Thomas Henry Simpson Memorial Institute for Medical Research, University of Michigan Medical School, Ann Arbor, gave the dedicatory address on "The Future of Medical Research."

♦ ♦

Council on Medical Education and Hospitals, American Medical Association Dr. Victor E. Johnson Appointed Secretary

Dr. Victor E. Johnson, Dean of Students and Associate Professor of Physiology, University of Chicago, has been appointed secretary to succeed Dr. Herman G. Weiskotten, dean Syracuse University School of Medicine. Dr. Johnson will assume his duties July 1, 1943.

♦ ♦

Charles B. Pinkham

Secretary-treasurer of the California Board of Medical Examiners since 1913, Dr. Pinkham retires from that office but remains a member of the Board. Throughout his career, Dr. Pinkham maintained interest in the high standards of medical education. Many illegal practitioners have good reason to remember his activities. Doubtless his interests in sound medical education will continue to uphold accepted standards.

He will be succeeded by Dr. Frederick N. Scatema, of Sacramento, a member of the Board since 1914. He is a graduate of the University of California Medical School.

Book News

Essentials of Proctology

By Harry E. Bacon, M.D., Professor and Head of the Department of Proctology, Temple University School of Medicine. Introduction by Curtice Rosser, M.D., Professor of Proctology, Baylor University College of Medicine. J. B. Lippincott Company, Philadelphia. 1943. Price, \$3.50.

A condensed, compilation of essential data, with an excellent index of symptoms and signs which the student will appreciate. Well illustrated.

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Diseases of the Nose, Throat and Ear

By William L. Ballenger, M.D., Late Professor of Otology, Rhinology and Laryngology, University of Illinois College of Medicine, and Howard C. Ballenger, M.D., Associate Professor of Otolaryngology, Northwestern University Medical School. Ed. 8. Lea & Febiger, Philadelphia. 1943. Price, \$12.

Thoroughly revised both as to text and illustrations. Too large a work for the medical student but highly appreciated by the specialist.

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Synopsis of Diseases of the Skin

By Richard L. Sutton, M.D., Emeritus Professor of Dermatology, and Richard L. Sutton, Jr., M.D., Assistant Professor of Dermatology, University of Kansas School of Medicine. The C. V. Mosby Company, St. Louis. 1943. Price, \$5.50.

Compact, simple, practical for the medical student. It is questionable whether in a book of this kind it is of advantage to give so many references. The illustrations are excellent and informative.

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Introduction to Organic and Biological Chemistry

By L. Earle Arnow, Ph.D., M.D., Director of Biochemical Research, Medical Research Division, Sharp & Dohme, Inc., and Henry C. Reitz, Ph.D., Assistant Chemist, Western Regional Research Laboratory, U. S. Dept. Agriculture. 1943. Price, \$4.25.

I: a review of chemical fundamentals; II: deals with the subject matter of organic chemistry; III: a summary of the more important phases of metabolism and nutrition. Selected references are included at the end of most chapters. The illustrations are an innovation in a chemistry text. They add considerably to interest and the value of the book to the student.

The March of Medicine

The New York Academy of Medicine Lectures to the Laity, 1942. Columbia University Press, New York. 1943. Price, \$2.50.

These lectures deal with the less technical phases of the management of disease and place more stress on the history, art and romance of medicine. The subjects covered are: Tuberculosis; the Brain and the Mind; the Freudian Epoch; Genius, Giftedness and Growth; the History of the B Vitamins, and the Newer Knowledge of Nutrition. Speakers are, respectively: Dr. James A. Miller; Dr. Tracy J. Putnam; Dr. A. A. Brill; Dr. Arnold Gesell; Dr. Norman Jolliffe and Dr. A. J. Carlson.

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Behind the Sulpha Drugs:

A Short History of Chemotherapy

By Iago Galdston, M.D., with a preface by Perrin H. Long, M.D., Associate Professor of Medicine, Johns Hopkins University. D. Appleton-Century Company, New York. 1943. Price, \$2.

A fascinating story about the discovery of sulpha drugs and the history of chemotherapy.

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Gynecology: With a Section on Female Urology

By Lawrence R. Wharton, M.D., Associate in Gynecology, Johns Hopkins University Medical School. W. B. Saunders Company, Philadelphia. 1943. Price, \$10.

The author says that "this book is an effort to put into simple and clear form the main facts about gynecology." He uses nearly 1,000 pages to do that, which the medical student will find rather confusing. However, he will be helped somewhat by the outline at the beginning of each chapter which is intended to give him, "at a glance," the whole subject in its proper proportions. For the gynecologist, this book has much to offer.

* *

Flying Men and Medicine:

The Effects of Flying on the Human Body

By E. Osmun Barr, M.D. Funk & Wagnalls Company, New York. 1943. Price, \$2.50.

This is the story of aviation medicine. It is interesting, told in simple English. Any one who has a "yen" to become a pilot will find here what he must do to gratify his ambition.

Doctor in the Making: The Art of Being a Medical Student

By Arthur W. Ham, M.B., Associate Professor of Anatomy, and M. D. Salter, Ph.D., Lecturer and Research Fellow, Department of Psychology, Faculty of Medicine, University of Toronto. J. B. Lippincott Company, Philadelphia. 1943. Price, \$2.

This is a fine book for every prospective medical student to read carefully and thoughtfully. It is a contribution toward filling the need for teaching them the right road to learning. It is the result of the advisory committee for freshmen at Toronto appointed several years ago. The authors cover the ground thoroughly. Part I deals with "Motivation and Equipment." Part II—"Enemies of Success and How to Defeat Them;" Part III—"The Responsibilities of a Medical Student." The chapter on "Memory versus Understanding" is particularly good. In fact, every chapter deals with what the student should read and understand before he decides to enter a medical school. The authors should be complimented on the good job they have done. Many a student who will read this book will be deterred from entering on the study of medicine and those who do enter will be benefitted by having been given the right attitude of mind and excellent pointers on how to proceed, what to do and what not to do.

♦ ♦

Textbook of Anatomy and Physiology for Nurses

By Carl C. Francis, M.D., Instructor in Anatomy, Western Reserve University, G. Clinton Knowlton, Ph.D., Assistant Professor of Physiology, and W. W. Tuttle, Ph.D., Professor of Physiology, College of Medicine, State University of Iowa. The C. V. Mosby Company, St. Louis, 1943. Price, \$3.50.

An excellent text for nurses—and medical students will not be wasting their time if they read it in addition to more voluminous texts.

♦ ♦

Methods for Diagnostic Bacteriology

By Isabelle G. Schaub, A.B., Instructor in Bacteriology, School of Medicine, Johns Hopkins University, and M. Kathleen Foley, A.B., Bacteriologist in Charge of the Diagnostic Bacteriological Laboratory of the Medical Clinic, The Johns Hopkins Hospital. 2d ed. The C. V. Mosby Company, St. Louis. 1943. Price, \$3.50.

A good guide for the isolation and identification of pathogenic bacteria for medical bacteriology laboratories. The authors have had a wide experience, hence their effort to bring this into type is worth while and should prove helpful to medical students and others engaged in this field.

Lure of Alaska

By Harry A. Franck. J. B. Lippincott Company, Philadelphia. 4th Printing. 1943.

We all enjoy fireside traveling, especially when all we would like to know about a country is contained on the printed page with accompanying illustrations. Franck is a good observer; knows what the reader would like to know about any country because of his unusually vast experience as a traveler in just about every country on the globe—and often afoot. This book was first printed in 1939. Alaska today has strong appeal to us because of the war. We have had many misconceptions about Alaska, especially as to climate. Therefore, it is enlightening to read that at Fairbanks the temperature varies from 78 degrees below to 110 degrees above! That flowers and some fruits are plentiful; in fact Alaska is notable for its gorgeous flowers. Many misconceptions about Alaska are corrected in this book. It is far more interesting than a novel because it is truth.

♦ ♦

Clinical Laboratory Diagnosis

By Samuel A. Levinson, M.D. Director of Laboratories and Pathologist, Research and Educational Hospitals, Professor of Pathology and Assistant Professor of Medicine, University of Illinois College of Medicine, and Robert P. MacFate, Ph.D., Assistant Director of Laboratories and Assistant Professor of Pathology, University of Illinois. Ed. 2. Lea & Febiger, Philadelphia. 1943. Price, \$10.

Completely revised and brought up to date.

♦ ♦

The Principles and Practice of Obstetrics

By Joseph B. DeLee, M.D., Formerly Professor of Obstetrics and Gynecology, University of Chicago, and J. P. Greenhill, M.D., Attending Obstetrician and Gynecologist, Michael Reese Hospital. Ed. 8. W. B. Saunders Company, Philadelphia. 1943. Price, \$10.

Thoroughly revised; many deletions and additions with elaborations.

♦ ♦

Textbook of Pathology: (An Introduction to Medicine)

By William Boyd, M.D., Professor of Pathology and Bacteriology, University of Toronto. Ed. 4. Lea & Febiger, Philadelphia. 1943. Price, \$10.

Rewritten and revised as well as reset. Material on immunology has been omitted to make room for numerous topics which appear in this edition for the first time. Surgical pathology is included. And it is a real introduction to medicine.

*Manual of Industrial Hygiene:
And Medical Service in War Industries*

William M. Gafafer, D.Sc., Editor. W. B. Saunders Company, Philadelphia, 1943. Price, \$3.

This book was prepared by the Division of Industrial Hygiene, National Institute of Health, United States Public Health Service with the cooperation of many men who may be termed to be authorities, each in his or her own field. It discusses organization and operation of facilities; prevention and control of disease in industry and the manpower problem.

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*The Inner Ear:
Including Otoneurology, Otorrhagia and
Problems in Modern Warfare*

By Joseph Fischer, M.D., formerly of Vienna, and Louis Wolfson, M.D., Instructor in Ear, Nose and Throat, Tufts Medical School. Grune & Stratton, 1943. Price, \$5.75.

The aerosurgeon will find the chapters on war trauma, the role of the inner ear in aeronautics and the effects of atmospheric pressure changes on the ear to his liking. The book reflects credit on the authors.

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Laboratory Experiments in Physiology

By W. D. Zoethout, Ph.D., Professor of Physiology, Chicago College of Dental Surgery (Loyola University). Ed. 3. The C. V. Mosby Company, St. Louis. 1943.

A laboratory manual.

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Primer of Allergy

By Warren T. Vaughan, M.D., Richmond, Virginia. Ed. 2. The C. V. Mosby Company, St. Louis. 1943.

A guide book for those who must find their way through the mazes of this strange and tantalizing state written by a man who has had a large experience in this field. It will have more value for the layman than for the physician, yet the latter can profit by it.

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Hope Deferred

By Jeannette Seletz. The Macmillan Company, New York. 1943. Price, \$2.75.

This is a most interesting, enjoyable book, one which medical men will find to their liking. The author has done a splendid job. Highest joys and hopes, poignant tragedies, visions of unattainable goals are daily fare in the life of even an average doctor. How

a young man of acutely sensitive nature learns to face these heights and depths of human experience, is the subject of this remarkable novel, by a new author who writes with scientific accuracy of medical detail and an extraordinary gift of objectivity. From student days, through hospital internship, into practice, the author shows us life as it is inside the medical profession, and delineates the strengths and weaknesses of those who mold the practice of medicine, with a stimulating incisiveness and a candor that is startling: the candor which alone can show how really great "the true physician" is.

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*A Manual of Otolaryngology,
Rhinology and Laryngology*

By Howard C. Ballenger, M.D., Associate Professor of Otolaryngology, Northwestern University Medical School. Ed. 2. Lea & Febiger, Philadelphia. 1943. Price, \$4.

Radical changes have been made in the arrangement of the material and to amplify the text to conform to present day knowledge and practice. The chapter on paralysis and neuroses of the larynx has been revised and partly rewritten by Dr. John J. Ballenger. A new chapter has been added covering foreign bodies in the air passages and the technic for tracheotomy. An epitome for medical students.

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Outline of Roentgen Diagnosis

By Leo G. Rigler, M.D., Professor of Radiology, University of Minnesota. Ed. 2. J. B. Lippincott Company, Philadelphia. 1943. Price, \$6.50.

An orientation in the basic principles of diagnosis by the roentgen method. The author is an authority and an experienced teacher, therefore, the needs of the student are kept in mind. He will find this book very useful.

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"King David and King Solomon

Led merry, merry lives,

With many, many lady friends

And many, many wives;

But when old age crept over them—

With many, many qualms,

King Solomon wrote the Proverbs

And King David wrote the Psalms."

JAMES BALL NAYLOR, *Ancient Authors.*

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Give me a sense of humor, Lord,

Give me grace to see a joke;

To get some happiness from life

And pass it on to other folk.

(Said to be epitaph in some old English church.)

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